AMERICAN RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 136 NASSAU ST., NEW YORK, AT FIVE DOLLARS PER ANNUM IN ADVANCE.

SECOND QUARTO SERIES, VOL. V., No. 52] SATURDAY, DECEMBER 29, 1849. [WHOLE No. 705, VOL. XXII.

ASSISTANT EDITORS,

J. T. HODGE, *For Mining and Metallurgy.*

GEN. CHAS. T. JAMES, *For Manufactures and the Mechanic Arts.*

M. BUTT HEWSON, C. E., *For Civil Engineering.*

PRINCIPAL CONTENTS.

Iron Ores and Iron Manufacture of the U. S...815
Extracts from the President's Message.....817
" " Report of the Sec'y of Interior.817
" " " " Treasury.618
Central Railroad, North Carolina.....820
Finances of Indiana.....820
Evansville and Mt. Carmel Railroad.....820
Meredosia and Quincy Railroad.....820
Nashville and Chattanooga Railroad.....820
Waynesboro' Railroad, Georgia.....821
Richmond and Danville Railroad.....821
Philadelphia and Columbia Railroad.....821
Troy and Rutland Railroad.....821
Winchester and Potomac Railroad.....821
Communication between Portland and N. Y...821
Hudson River Railroad.....821
Illinois—Her State Policy.....822
Old Colony Railroad.....823
Lovegrove's New Mode of Casting Iron Pipe..824
A Letter on Shrinkage and Expansion of Iron.824

American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & CO., 136 NASSAU ST.

Saturday, December 29, 1849.

Iron Ores and the Iron Manufacture of the United States.

MARYLAND.

Continued from page 801.

The *Locust Grove Furnaces*, situated about eight miles from Baltimore, near the Philadelphia railroad, are, one of them a very small stack, the other of the usual size. Both the steam engine and water power being insufficient for the blast they have failed to produce a large yield of pig metal. The ores employed are carbonates from the vicinity of the furnaces; the iron made is forge pig of good quality.

The *Chesapeake furnace* is on the east side of the inner basin of Baltimore Harbor. It was built in 1844, and has been successfully run by G. Cary, Esq. During the year 1848 it made more iron than has been made by any one of the Chesapeake Bay furnaces in one year, amounting to something over 2400 tons. Some of the hematites from the York railroad have been brought to this furnace and mixed with the carbonates, which have always supplied it. Though the hematites were among the most siliceous of these ores, their use was attended with no difficulties, nor did they impair the excellence of the iron, which is the general impression strangely enough entertained as to the consequence that would result from their employment. This furnace is provided with seven kilns, which hold from 50 to 60 cords of wood each.

The *Munson furnaces* are but a short distance above the Chesapeake furnace, and within the limits of the city. The Philadelphia railroad passes directly by them, and the furnace yard extends along the dock on the harbor. They were built, one in 1843 and the other in 1845. They are about 32 feet high, and 8½ feet across the boshes. They are blown by two steam engines of 15 horse power each, with two tweres to each furnace. The boilers are heated mostly by the escape heat, the gas being taken out twelve feet below the tunnel head. In the furnace yard are 14 kilns for charring the wood, which is brought in vessels to the dock.—These furnaces have been run with more success than most of the other furnaces of this region, their yield having averaged over 4000 tons per annum. The quality is high and mottled iron, about half of each, all forge pig. It bears a high reputation in the market, and has been sold almost wholly in Massachusetts for the rolling mills and nail factories.

The *Maryland furnace* on the south side of the basin in the city of Baltimore is connected with the Maryland Chemical Works, which establishment bears the date of 1827; the furnace has run, I am informed, only about seven years. In the yard are seven kilns of the capacity of 60 cords each. This number is found just sufficient to keep one furnace supplied with charcoal. The stack is 30 feet high, and its diameter across the boshes 8 feet 7 inches. The slope of the boshes is only 45°, which for the light coal used is here considered the most suitable inclination. The hearth is seven feet high, and its square at the bottom is 26 inches by 23. The tunnel head is only 18 inches in diameter; the line of the sides below it is slightly curved. The furnace is blown with two close tweres of 3 inch nozzle, which enter 17 inches above the bottom of the hearth. The steam engine of 25 horse power consumes 3½ cords of wood per day. The blower is one cast iron cylinder 5 feet long and 3 feet diameter, which when the apparatus is tight, is run at the rate of 12 revolutions per minute; when I saw it, it was running at the rate of 18 revolutions.—The regulator is a cylinder of boiler plate iron 12 feet high and 4 feet diameter. The gas for the boilers is taken out eleven feet below the tunnel head in an 18 inch pipe, The heating pipes for the blast are 60 in number, connected by 30 elbows; the are 9 feet long and 3 inches diameter.

The ores for the furnace are carbonates from several localities, some of them bronght for a distance of 17 miles on the Washington railroad. After roasting it is estimated that 2½ tons are required to the ton of iron. Oyster shells are preferred to limestone as a flux, one peck of them being used to 500 lbs. ore. The yield of the furnace is often 8 tons a day of good forge pig.

The *Laurel furnace*, owned by Messrs. Reese & Mills, is situated about half a mile farther down the harbor. It was built in 1845. It is supplied with 7 kilns for making charcoal, with heating apparatus for the blast, and with a steam engine of about 20 horse power. The stack is 31 feet high, boshes 8 feet in diameter with an inclination of 12 inches in 10. It is blown with two close tweres of 3 inch nozzle, that of the blow pipe being 2 inches. The hearth is five feet from front to back and 22 inches across the front at bottom. The gas is taken out for the boiler 12 feet below the tunnel head. There is one blowing cylinder, 5½ feet long and 4 feet diameter, which is worked at the rate of 9 revolutions per minute. The ores used are carbonates alone; they are now conveniently brought to the three furnaces on this side the harbor by the railroad running down Locust Point from the Baltimore and Washington railroad.

Patapsco Furnace—This is about a mile below the preceding on Locust or Whetstone Point. It is an old stack and of small size, being 28 feet high and 6½ feet across the boshes. In 1348 the slope of the boshes was flattened from 45° to 40°, at the same time the tunnel head was enlarged a few inches, and the blast pipe so arranged as to exclude the watery vapor usually carried through it from the regulator. By these alterations the yield was increased so that from running at the rate of six to seven tons a day it made in four weeks of November, 1848, 207 tons of pig metal. The volume of air is estimated at 500 cubic feet per minute at ¼ lb. pressure. The hearth of this furnace is of the usual height of these furnaces, seven feet. It is 21 inches square at the bottom and 24 at the top; its length from the dam back 5 feet. The length of

the blast is usually seven months; in this time it makes from 1000 to 1100 tons. Three weeks only are required to cool off and put in a new hearth. Six kilns keep the furnace in charcoal. A puddling furnace is connected with this blast furnace, but it has not lately been in operation.

Ashland Furnaces.—These two anthracite furnaces, owned by Messrs. Patterson, Small & Co., are situated about 17 miles out from Baltimore on the Baltimore and Susquehanna railroad. Beaver Dam Run, a little above its junction with Western Run, furnishes a part of the power required for the blast; the remainder is supplied by a steam engine of about 60 horse power. The boilers are five in number, 30 feet long, placed between the two stacks at the level of the tunnel head, running across from one to the other. The gas for these is taken out in one flue to each furnace five feet below the filling plate: two other flues to each furnace at the same level carry the hot air to the oven for the heating pipes.

The stacks, built of brick, are 32 feet high; tunnel head 5 feet in diameter; across the boshes they measure 11 feet, and the same diameter is continued for 6 feet higher up.

Two cast iron blowing cylinders are connected with the water wheel, and two others of 5 feet diameter and 5 feet stroke with the steam engine. The regulator of boiler plate iron, is an upright cyinder,126 feet high and 6 feet diameter. The furnace is blown by three tweres with blow pipes of 2½ inches diameter at a pressure of 2½ lbs. to the square inch.

The ores are hematites brought from the great bed at the head of Beaver Dam Run, three miles west from the furnaces and the railroad. They are used with no care in sorting and without washing any of them or roasting. They are thrown in in large masses, and the fine ore with much dirt intermixed. Large pieces of stone, pure granite from the mine, go in with the rest, the limestone too used as flux is in the coarsest lumps. Such treatment, which would seriously derange a charcoal furnace, is here considered more economical, than it would be to sort and clean the ores, though the effect of it cannot but be seen in the cinder heaps in the undigested lumps of quick lime, half reduced ore and heaps of unconsumed anthracite. Until December, 1848, only one of these furnaces had been in blast. Its yield was from 4 to 5 tons at a casting, of which there were two in 24 hours; once 5½ tons were obtained. The iron is good foundry iron of Nos. 1 and 2. The harder quality is used to some extent for puddling.* The cost of anthracite delivered at the furnace, is $3 75 per ton; and it is estimated that the consumption here to the ton of iron is 38 cwt. Of the ore, 2½ tons ought to be sufficient to make a ton of iron; its cost is for mining about 60 cents, transportation about 70 cents. The company own the portion of the mine from which they are supplied. From these data the cost of making iron at this locality ought to be very low, not differing essentially from the following estimate:

1 18-20 tons anthracite at $3 75....	$7 12
2½ tons hematite at 1 20.....	2 70
Labor 2 50, flux 30.....	2 80
Interest, superintendence and repairs	3 00
Transportation to Baltimore.....	0 74
	$16 36

* Since the above was written, which is now about a year, I understand the iron has materially improved, and is now regarded as a superior quality of forge pig.

In New York city then its cost would be about $21. This cannot be considered a low estimate, for with two furnaces the general expenses of labor, interest, superintendence and repairs must be much less in proportion than with one.

In consequence of many alterations, however, and the substantial and thorough manner in which the work has been done, the capital invested is large, and it is not supposed that with one furnace only in operation the profits to the company have been of any amount.

The Oregon Furnace.—This is an anthracite furnace on the great bed of hematite at the head of Beaver Dam Run, three miles west from the furnaces just described. It was built by Messrs. Green & Fernandez, and completed in December, 1848. It is one of the most thoroughly built and well provided furnaces in the country. The height of the stack is 36½ feet, its diameter at the boshes is 10½ feet, and six feet higher up it is 11 feet; at the tunnel head 4½ feet. The hearth, which is singularly constructed, is 6½ feet high. At the bottom it is 40 inches square, and for the first 28 inches, where the three tweres come in, its sides are built up plumb. Above these they spread outwards and into a curved form till they fall into the slope of the boshes, making here a circle, at the height of 6½ feet, of 5½ feet diameter: the boshes rise a foot in 4 inches, which gives an angle of about 72°. The gas is taken out for the heating oven and boilers by two flues of two feet height each, the lower edge of which is 6 feet below the filling plate. Two other flues (18 inch pipe) are placed, their lower edge 11 feet down to be used for the boilers if required. The heating pipes consist of two bed-pieces 18 inches diameter with 15 uprights of 5 inches diameter to each bed-piece. Between the bed-pieces is a row of elbows opening upwards, which receive two more rows of uprights from the elbows above, thus making four rows of uprights arranged in cross sections like the letter M, the two bed-pieces lying at the two outer corners below. There are 3 three-flue boilers 20 feet long and 3½ feet diameter.

The hearthstones for this furnace are of large size and excellent quality, hauled from Deer creek in Harford county, more than 20 miles. They are most of them 2 feet thick or more; one piece put in over the tymp weighs over 4 tons. It is calculated these will stand from 15 to 18 months.

The anthracite for the furnace is hauled from the Cocheysville depot, about 3 miles, and the teams take the iron for a back-load. Reckoning the cost of fuel at $4 37½ a ton and its consumption at a ton and three-quarters to the ton of iron, which is a large supply for these ores in well conducted furnaces, the cost of this item would not exceed $7 62. The ores do not probably cost delivered at the furnace more than 75 cents per ton, and 2½ tons is enough for a ton of iron. We have then the following estimate of cost of production of the pig iron:

Fuel.....	$7 62
Ore.....	1 69
Flux.....	0 50
Labor.....	2 50
Repairs, interest and superintendence	3 00
Transportation to Baltimore.....	1 25
	$16 56

Its cost in New York city is then about the same as of the iron last described.

The *Elkridge furnace* was built in the year 1826 by Andrew Ellicott, Jr., & Brothers, near Elkridge landing in Ann Arundel county. The furnace is 32 feet high with boshes of 8½ feet. The blast is driven by water from the Patapsco and is carried into the furnace by one twere.

"The duration of the blast is from nine to ten months, and the average annual product, which has been stated to me at 1400 tons is almost entirely produced in castings of various kinds, principally water and gas pipes. The iron is of good quality; and I have had occasion to notice the advantage of its being mixed with some other pig to produce castings of the second fusion, in which the maximum of stiffness and tenacity was desirable."*

This furnace I have not visited myself, and am unable to give farther details concerning it. Its ores are carbonates procured from the mines south of Baltimore near the Washington railroad.

Curtis Creek Furnace.—This is described by Mr. Alexander as 30 feet high and 9½ feet boshes. It is driven by water power, using 900 cubic feet of air per minute, which is blown in by one twere. The ore is the carbonate from the vicinity of the furnace and from the neighborhood of Baltimore. Oyster shells are used as flux. The yield of the furnace is about 1100 tons per annum of foundry iron. Running on forge pig it would make more. The iron is mostly made into castings in a cupola furnace near by and in another in Baltimore; these and the blast furnace all belonging to Messrs. Barker & Son.

The Principio furnace, supplied in part with ore from the same beds with this furnace, makes forge pig, while this makes foundry iron; the difference is in part owing to the mixture of hematite and forge cinder employed by the former, and by the Curtis Creek furnace working hotter and slower.

The *two furnaces of the Savage Manufacturing Company* were built several years since at their works on a branch of the Patuxent river, a mile west of the Washington railroad, about half way between Baltimore and Washington. They are small stacks of light construction, rather intended for remelting of iron, than for making it from the ore. One of them has however been successfully run for some weeks, after which they have remained idle. Should iron again bear a good price these furnaces being conveniently situated for supplies of ore might be without much expense put in condition for melting iron to profit.

The *Patuxent furnaces* are built on the Patuxent river, near the Annapolis railroad, three miles east of the Washington railroad. They are plaeed at each end of a long casting house. The size of one of them (the only one spoken of by Mr. Alexander) is 28 feet in height and 8 feet across the boshes. The other was probably built between the time of his publication and my visit to the works in 1845. They are blown by water power with only one twere pipe, and at a pressure of 1¼ lb. Only one of the furnaces has been in operation at a time, probably for want of sufficient power. The ore is the carbonate of iron, which is found abundantly and of good quality in the neighborhood, at Jessup's four miles from the furnace, and at White Oak bottom on the Washington railroad, 8 miles; it is mixed with some forge cinder. The fuel is oakwood charred in the kilns standing near the furnaces. The flux is oyster shells and sometimes a coarse granular limestone. The yield of one of these furnaces is estimated at 1100 tons per annum.

The *Muirkirk furnace* was built by John Ellicott in 1848 at White Oak Bottom near Bladensburg, 26 miles from Baltimore on the Washington railroad. This furnace is of the best class, provided

* Alexander's Report, p. 91.

with good steam engine and hot blast apparatus. Its ores are carbonates obtained from the immediate vicinity of the furnace.

The *Snowhill or Naseongo furnace* is in the bog-ore district in the southern part of Worcester county, on the Eastern Shore of Maryland. The region where it is situated is low and unhealthy, traversed by many small shallow streams, which in a wet season overflow their banks and flood the country around. The bog ore is found abundantly in these low lands, and is obtained at little cost. Pine timber is also plentiful and cheap, and with these materials and the employment of slave labor, a soft and weak iron, cold short, suitable only for castings, is made at very little expense. This iron, though sometimes so rotten as hardly to bear transportation, is still in demand by a few consumers, who find it remarkably well adapted for fine ornamental castings. It is used with an equal quantity of other iron.

The *Elba furnace* at Sykesville, 32 miles from Baltimore, on the Baltimore and Ohio railroad, was built in 1848 by Mr. Fales of Baltimore. The water power here on the west branch of the Patapsco is sufficient with a wheel 15 feet diameter and 5 feet buckets to raise the blast for the small stack. This is 28 feet high with a base of 23 feet square. The hearth is 5 feet 10 inches high, square at the bottom 24 by 22 inches. Across the boshes the diameter is about 6½ ft., their slope 47°. Eleven feet above the boshes the cylindrical cavity has contracted three inches, it then draws in to two feet diameter at the tunnel head. Over the wheel are two cast iron cylinders with wooden heads 4 feet diameter and 4 feet 10 inches stroke. They are calculated to blow 900 cubic feet a minute through three tweres. The blast is heated at the tunnel head.

This furnace was built to use the hematites from the Point of Rocks on the Potomac, which are brought down on the railroad and delivered at $3 per ton, or the carbonates from the Washington railroad, which are brought up at a cost of $3 25 delivered on the road, and 50 cents additional for transportation, making $3 75. But as other beds of hematite are found within four miles of the furnace and are now leased by the company, they may prove more economical than the ores from a greater distance. Since the furnace was built the beds of specular iron ore also have been discovered within a mile and a half of the furnace, and these now controlled by the furnace, will no doubt be worked in with economy and advantage. For variety of ores and the advantages that may be secured by mixing them to produce any quality of iron, probably no furnace in the State is so well situated as this. It is also in the way of the great quantities of bituminous coal carried past the furnace from Cumberland, which it can make use of at any time when the charcoal fails with which it is now supplied from the neighboring woodlands at the rate of five to six cents a bushel.

Estimating the ores to cost $3 37 per ton and 2½ tons to the ton of iron, and transportation to Baltimore at 75 cents, we have the following for the expense of pig metal delivered in the city:

Ore	$7 60
Charcoal	8 25
Flux 30, labor 2 50	2 80
Repairs, superintendence and interest	3 00
Transportation to Baltimore	0 75
	$22 40

H.

We give below such extracts from the President's Message, and other public documents, as come with the object of our paper, and possess a permanent and general interest:

Extracts from the President's Message.

Communications across the Isthmus.—A contract having been concluded with the State of Nicaragua, by a company composed of American citizens, for the purpose of constructing a ship canal through the territory of that State, to connect the Atlantic and Pacific Oceans, I have directed the negotiation of a treaty with Nicaragua, pledging both Governments to protect those who shall engage in and perfect the work. All other nations are invited by the State of Nicaragua to enter into the same treaty stipulations with her; and the benefit to be derived by each from such an arrangement will be the protection of this great inter oceanic communication against any power which might seek to obstruct it, or to monopolise its advantages. All States entering into such a treaty, will enjoy the right of passage through the canal on payment of the same tolls.

The work, if constructed under these guarantees, will become a bond of peace, instead of a subject of contention and strife, between the nations of the earth. Should the great maritime States of Europe consent to this arrangement, (and we have no reason to suppose that a proposition so fair and honorable will be opposed by any,) the energies of their people and ours will cooperate in prompting the success of the enterprise. I do not recommend any appropriation from the national treasury for this purpose, nor do I believe that such an appropriation is necessary. Private enterprise, if properly protected, will complete the work, should it prove to be feasible. The parties who have procured the charter from Nicaragua, for its construction, desire no assistance from this Government beyond its protection; and they profess that, having examined the proposed line of communication, they will be ready to commence the undertaking whenever that protection shall be extended to them. Should there appear to be reason, on examining the whole evidence, to entertain a serious doubt of the practicability of constructing such a canal, that doubt could be speedily solved by an actual exploration of the route.

Should such a work be constructed, under the common protection of all nations, for equal benefits to all, it would be neither just nor expedient that any great maratime State should command the communication. The territory through which the canal may be opened ought to be freed from the claims of any foreign power. No such power should occupy a position that would enable it hereafter to exercise so controlling an influence over the commerce of the world, or to obstruct a highway which ought to be dedicated to the common uses of mankind.

The routes across the Isthmus, at Tehuantepec and Panama, are also worthy of our serious consideration. They did not fail to engage the attention of my predecessor. The negotiator of the treaty of Guadalupe Hidalgo was instructed to offer a very large sum of money for the right of transit across the Isthmus of Tehuantepec. The Mexican government did not accede to the proposition for the purchase of the right of way, probably because it had already contracted with private individuals for the construction of a passage from the Guasacualco river to Tehuantepec. I shall not renew any proposition to purchase, for money, a right which ought to be equally secured to all nations, on payment of a reasonable toll to the owners of the improvement, who would, doubtless, be well contented with that compensation and the guarantee of the maritime States of the world, in separate treaties negotiated with Mexico, binding her and them to protect those who should construct the work. Such guarantees would do more to secure the completion of the communication through the territory of Mexico than any other reasonable consideration that could be offered; and as Mexico herself would be the greatest gainer by the opening of this communication between the Gulf and the Pacific Ocean, it is presumed that she would not hesitate to yield her aid, in the manner proposed, to accomplish an improvement so important to her own best interests.

We have reason to hope that the proposed railroad across the Isthmus at Panama will be successfully constructed, under the protection of the late treaty with New Grenada, ratified and exchanged by my predecessor, on the 10th day of June, 1848, which guarantees the perfect neutrality of the isthmus, and the rights of sovereignty and property of New Grenada over that territory, "with a view that the free transit from ocean to ocean may not be interrupted or embarrassed" during the existence of the treaty. It is our policy to encourage every practicable route across the Isthmus, which connects North and South America, either by railroad or canal, which the energy and enterprise of our citizens may induce them to complete; and I consider it obligatory upon me to adopt that policy, especially in consequence of the absolute necessity of facilitating intercourse with our possessions on the Pacific.

The position of the Sandwich Islands, with reference to the territory of the United States on the Pacific; the success of our persevering and benevolent citizens who have repaired to that remote quarter, in christianizing the natives, and inducing them to adopt a system of government and laws suited to their capacity and wants; and the use made by our numerous whale-ships of the harbors of the islands as places of resort for obtaining refreshments and repairs, all combine to render their destiny peculiarly interesting to us. It is our duty to encourage the authorities of those islands in their efforts to improve and elevate the moral and political condition of the inhabitants; and we should make reasonable allowances for the difficulties inseparable from this task. We desire that the islands may maintain their independence; and that other nations should concur with us in this sentiment. We could in no event be indifferent to their passing under the dominion of any other power. The principal commercial States have in this a common interest, and it is to be hoped that no one of them will attempt to interpose obstacles to the entire independence of the islands.

RAILWAY TO THE PACIFIC.

The great mineral wealth of California, and the advantages which its ports and harbors, and those of Oregon, afford to commerce, especially with the islands of the Pacific and Indian Oceans, and the populous regions of Eastern Asia, make it certain that there will arise, in a few years, large and prosperous communities on our western coast. It, therefore, becomes important that a line of communication, the best and most expeditious which the nature of the country will admit, should be opened, within the territory of the United States, from the navigable waters of the Atlantic or the Gulf of Mexico to the Pacific. Opinion, as elicited and expressed by two large and respectable conventions, lately assembled at St. Louis and Memphis, points to a railroad as that which, if practicable, will best meet the wishes and wants of the country. But while this, if in successful operation, would be a work of great national importance, and of a value to the country which it would be difficult to estimate, it ought also to be regarded as an untaking of vast magnitude and expense, and one which must, if it be, indeed, practicable, encounter many difficulties in its construction and use. Therefore, to avoid failure and disappointment; to enable Congress to judge whether, in the condition of the country through which it must pass, the work be feasible, and if it be found so, whether it should be undertaken as a national improvement or left to individual enterprise; and in the latter alternative. what aid, if any, ought to be extended to it by the Government, I recommend as a preliminary measure a careful reconnoissance of the several proposed routes by a scientific corps, and a report as to the practicability of making such a road, with an estimate of the cost of its construction and support.

Extracts from the Report of the Secretary of the Interior.

PUBLIC LANDS.

It will be seen by the report of the Commissioner of the General Land Office that the surveys of public lands have been pressed forward with dilligence and energy, so as to bring new and good lands into market sufficient to supply the wants of emigration.

The quantity sold for cash in the first three-quarters of the year 1848 was	1,448,240 51	acres
In the first three-quarters of 1849	887,206 40	do.
Showing a diminution of...	561,034 11	do.
The amount located by bounty warrants in the first three-quarters of 1848	1,525,200	acres.
In the first three-quarters of 1849	2,496,560	do.
Showing an increase of.....	971,360	acres.
And making together an aggregate increase over the sales and locations of the first three-quarters of the preceding year of	410,325 89	acres.

The claims for bounties, under the acts of February 11, 1847, and 10th August, 1848, as shown above, are, in round numbers 83,000
Estimated number yet to be filed 20,000

Making in the aggregate 103,000

Of these, 2,922 have been satisfied in money, and 70,390 have been allowed—to be satisfied in land—which will require.....	10,636,120	acres,
And should there be but 100,000 valid claims, as is estimated, then there will remain 26,688 unsatisfied claims which, if settled in land, will require a further quantity of.....	4,020,480	acres.
Making in all.....	14,656,600	do.
Prior to the 1st of October last there had been located with these Mexican war warrants..	5,025,400	do.
Leaving yet to be located...	9,631,200	do.

The proportion of waraants used instead of purchase money in the ordinary sales will probably absorb them in the three next ensuing years, and sooner. if they take the place of cash generally in the current sales. Until the bounty warrants are exhausted, the receipts in cash from the sales of the public lands must be comparatively small.

The attention of this department was early directed to the continuation of the geological explorations and surveys of the mineral lands in Michigan, Wisconsin, and Iowa. On the 12th day of April, about the opening of the session for field operations, Dr. Charles T. Jackson, the principal geologist, who had conducted in person the survey of the mineral lands of Michigan, resigned his situation, and recommended the appointment of his assistants, Mr. J. W. Foster and Mr. J. D. Whitney, Jr. to finish the work. In a few days, however, he asked leave to withdraw his resignation.—After looking into the progress of the work, and considering the time which it had required for its execution thus far, I was convinced that he could not, by any effort which it was reasonable to require of him, conduct the field work in person and prepare a report of what he had already done, and what was yet to be done, in time for it to be laid before Congress at their coming session. I therefore dispensed with his further service in the field, and instructed him to finish his analysis of the minerals collected, and prepare a report of the work done by him in the two preceding years. This report has been received, and will accompany that of the Commissioner of the General Land Office. It will be found to contain much historical information touching the early explorations of the country bordering on Lake Superior, with a full and able description of the geological relation and character of the rich deposits of native copper on Isle Royal and Keeweenaw Point.

The magnetic observations of Dr. Locke, one of the assistant geologists charged with that service by Dr. Jackson, will be regarded with peculiar interest. The magnetic energy which manifests itself at different points on the earth's surface, by its action on the needle in different directions, and with different degrees of force, giving to it what are called its dip, its declination, and its intensity; the diurnal variations of each of these, the variation of each of them in long periods of time, and the manner in which they are affected by meteorological and electrical phenomena, have for many years been objects of great interest to science, and of careful observation on almost every part of the earth's surface accessible to civilized man. Our linear surveyors and our topographical cors, in their survey of Lake Superior, have found it necessary to observe the magnetic action so far only as regards the declination of the needle, or its direction toward or variation from the true pole. The observations of Dr. Locke, which accompany Dr. Jackson's report, are therefore all that we have in that region which regards ihe magnetic force in its various manifestations, and it is matter of regret that they could not have been longer continued and further extended.

The residue of the field work of this district was intrusted to Messrs. Foster and Whitney, who have pressed it forward with much dilligence and industry. Their report is not yet completed, but the synopsis and the geological maps, which they have returned, and which will accompany the report of the Commissioner of the General Land Office, are highly satisfactory to the department and creditable to themselves. Their maps designate by quarter sections the lands on which valuable mineral deposits are found, so that the agricultural lands within the mineral region can now be offered for sale pursuant to law.

Dr Owen, the geologist for Wisconsin and Iowa, has furnished all the data necessary to enable the Land Office to bring into market the mineral lands of the Chippewa District in Wisconsin, and he has extended his exploration and survey over not only the northern part of Iowa and Wisconsin, but Minesota also as far north as the United States boundary line, and west a short distance beyond the Red River of the north. His report, which is in course of preparation, will, it is believed, be not only a valuable contribution to science, but contain also the best information which we have of the agricultural capabilities and the mineral wealth of the extensive district of country which he has explored. A further appropriation will be necessary to enable him to complete the analysis of minerals which he has collected and to prepare his report.

ROAD TO THE PACIFIC.

The population of California, already considerable in numbers, is rapidly increasing by immigration. Adventurers, attracted there in search of gold, are gradually forming a fixed population, and must, in the nature of things, soon draw after and connect with them the ordinary acoompaniments of social life. Its mining will become a regular branch of protective industry, employing many hands and much machinery, and affording the necessary encouragement on the spot to the building np of work shops and the exercise of the mechanic arts. It has already a considerable commerce, which is constantly increasing and must soon become extensive, not only with our own country and Europe, but with China and the Pacific Islands, including Japan, whose ports it is believed will be opened to the admission of its gold. This concurrence of favorable elements, among which should be included the agricultural and manufacturing capacities of Oregon, will cause to spring up with a rapidity heretofore unexampled, large and prosperous communities on our Pacific coast.

Some means of communication across the continent, through our own territory, from the Atlantic to the Pacific, a road which can be passed over with reasonable speed and safety, is necessary to meet the wants of our citizens on either coast, and is equally necessary to aid the government in controlling the Indian tribes of the intermediate country, and in protecting from their depredations our two lines of frontier settlements, which will now gradually approach each other. Opinion, as expressed and elicited by two large and respectable conventions, recently assembled at St. Louis and Memphis, points to a railroad as that which would best meet the wants and satisfy the wishes of our people. But what that road will be, and where and by whom constructed, must depend upon the action of Congress, founded on such information as a careful reconnoissance of the country by a scientific corps may furnish.

Report of the Secretary of the Treasury.

TREASURY DEPARTMENT, December, 1849.

The Secretary of the Treasury reports:

RECEIPTS AND EXPENDITURES.

The receipts and expenditures for the fiscal year ending June 30th, 1849, were:

Receipts from customs		$28,346,738 82
" " public lands		1,688,959 25
" " miscellaneous sources		1,038,649 13
" " avails in Treasury notes and loans in specie		17,755,750 00
" " Do funded		10,833,000 00
		$59,663,097 50
Add balance in the Treasury, July 1, 1848		153,534 60
		$59,816,632 10
The expenditures for the same fiscal year were, in cash	$46,798,667 82	
Treas'y noteds funded	10,833,000 00	
		$57,631,667 82
Leaving a balance in the Treasury July 1, 1849		$2,184,914 28

as appears in detail by accompanying statement A

ESTIMATES.

The estimated receipts and expenditures for the fiscal year ending 30th June, 1850, are:

Receipts from customs 1st quarter, by actual returns	$11,643,728 54	
Receipts from customs—2d 3d and 4th quarters, as estimated	19,856,271 46	
		$31,500,000 00
Receipts from public lands		1,700,000 00
" " miscellaneous sources		1,200,000 00
		$34,400,000 00
Beceipts from avails of loans in specie	$399,050 00	
Receipts from do. in Treas'y notes funded	839,450 00	
		1,238,500 00
Total receipts		$35,638,500 00
Add balance in the Treasury, July 1, 1849		2,184,500 28
Total means, as estimated		$38,822,464 28

EXPENDITURES, VIZ:

The actual expenditures for the 1st quarter, ending 30th Sept. 1849, were	$8,904,829 96	
as appears in detail by accompanying statement B.		
The estimated expenditures during the other three-quarters, from 1st October, 1849, to 30th June, 1850, are:		
Civil list, foreign intereourse and miscellaneous	10,330,116 62	
Expenses of collecting revenes from customs	1,925,000 00	
Expenses of collecting revenue from lands	113,850 00	
Army proper, &c.	8,245,039 80	
Fortifications, ordnance, arming militia, &c	1,997,420 93	
Internal improve-		

ments, &c.....	77,072 30	
Indian department.	859,963 73	
Pensions.....	682,630 77	
Naval establishm't.	6,814,783 43	
Interest on public debt and Treasury notes.....	3,700,878 40	
		43,651,585 94
Deficit 1st July, 1850.....		$5,828,121 66

The estimated receipts and expenditures for the fiscal year commencing July 1, 1850, and ending June 30, 1851, are:

Receipts from customs.....	$32,000,000 00
" " public lands.....	2,150,000 00
" " miscellaneous sources	300,000 00
Total estimated receipts.....	$34,450,000 00

The expenditures during the same period, as estimated by the several departments of State, Treasury, War, Navy, Interior, and Postmaster General, are:

The balances of former appropriations which will be required to be expended this year.....	$5,656,530 34
Permanent and indefinite appropriations.....	5,643,410 24
Specific appropriations asked for this year.....	33,697,152 15
	$44,997,092 73

This sum is composed of the following particulars:

Civil list, foreign intercourse and miscellaneous.....	$11,088.724 64
Expenses of collecting revenues from customs.....	2,750,000 00
Expenses of collecting revenue from lands.....	170,835 00
Army proper, &c.....	8,296,183 44
Fortifications, ordnance, arming militia, &c.....	2,015,446 00
Internal improvements.....	1,247,203 38
Indian department.....	1,912,710 53
Pensions.....	1,927,010 00
Naval establishment.....	11,353,129 64
Interest on Treasury notes and public debt.....	3,742,951 13
Purchase of stock of the loan of 28 January, 1847.....	492,898 97
	$44,997,092 73
Deficit July 1, 1851.....	$10,547,092 73
Deficit July 1, 1850.....	5,828,121 66
Total deficit, 1850 and 1851.....	$16,375,214 39

Prior to the first of July last the expenses of collecting the revenue from customs were paid out of the accruing revenue at the several ports, and only the balance came into the Treasury; of course the receipts at the treasury, actual and estimated, were of the net revenue after deducting all expenses.

By the act of 3d of March last, the system was changed from and after 1st July, 1849, and, accordingly, the receipts, actual and estimated, from that date, are of the gross revenue, and estimates are submitted of the expenses of collection.

PUBLIC DEBT.

Annexed will be found a table marked (E) in compliance with the 22d section of the act of 28th January, 1847, containing the information required thereby respecting the issue, redemption, purchase, and sale of treasury notes.

As required by the first section of the act of 10th August, 1846, a statament is appended (marked E E) showing the amount of treasury notes paid within the preceding year under the provisions of that act.

Siatement F shows the payments into the trsasury on account of the loan of 1848.

The public debt amounted, on the 1st of October, 1838, agreeably to table O, annexed to the last report of my predecessor, to the sum of $65,778,450-41. Since that time, $1,072,756 70 of the debt has been redeemed and extinguished by the purchase of stocks, &c. Of the amount thus redeemed and extinguished there were—on account of the debt of the cities of the District of Columbia assumed by the act of the 20th May, 1836, $60,000 on account of the old funded and unfunded debt, $5,089 58 of treasury notes purchased at par and received in payment for lands and customs $2,450 of military bounty script, $233,075; of the stock of 1842, $80,-700; of the stock of 4843, $196,000; of the stock of 1848 $26,050; of the stock of 1847, $982,500; which last was paid for out of the land fund, and purchased by Hugh Maxwell, Esq., collector of the port of New York, with the aid (kindly afforded) of C. W. Lawrence, Esq., the late collector of that port, whose resignation had, at that time, just taken effect, and who had acquired some experience in similar operations, by having been employed in them by the government in the previous year.—See statement hereto annexed marked G.

The public debt now amounts to the sum of $64,-704,693 71, which will be redeemable as follows:

Parts of the old funded and unfunded debt on presentation.....	$122,735 10
Debts of the District cities assumed by Congress, $60,000 payable annually.....	960,000 00
Five per cent. stock, per act of August, 1846, redeemable 9th August, 1851.....	303,573 92
Five per cent. loan of 3d march, 1843, redeemable 1st July, 1853.	6,468,231 35
Six per cent. loan of 22d July, 1846 redeemable 12th November, 1856,	4,999,149 45
Six per cent. loan, of 15th April, 1842, redeemable 31st December, 1862.....	8,198,686 03
Six per cent. loan of 28th January, 1847, redeemable 1st January, 1868.....	27,618,450 55
Do. Do. Do.	149,828 00
Six per cen. loan of 31st March, 1848, redeemable first July, 1868	15,740,000 00
Treasury notes issued prior to 1846, payable on presentation; if converted into stock, under the act of January, 1847, will be redeemable 1st July, 1868.....	144,139 31
	$64,704,693 41

WAYS AND MEANS.

It will be observed that there is estimated a deficit on the 1st July next, of $5,828,121 66, and on the 1st July, 1851, of $10,547,092 73; making, in the whole, an estimated deficit of $16,375,214 39, to be provided for, arising from the expenses of the war and treaty with Mexico.

In order to aid in forming an estimate of the expenses occasioned by the war with Mexico, I have directed a statement to be prepared, which is hereto annexed, marked (H,) showing the excess of the expenses of the army proper for three years from 1st April, 1846, to 1st April, 1849, over those for the three years immediately preceding; and the excess of the expenses of the Navy proper for two and a half years from 1st April, 1846, to 1st October, 1848, over those for the two and a half years immediately preceding.

The excess of army expenditures thus ascertained, was.....	$58,853,994 41
And the excess of navy expenditures	4,751,627 90
Making together the sum of.....	$63,605,621 31
The increase of debt by the loans and treasury notes, authorized by the acts of July 22, 1846, 28th January, 1847, and March 31. 1848, was.....	$49,000,000 00
The difference between these sums, viz.....	$14,605,621 31

was of course paid out of the revenue (including balance on 1st April, 1846, and $563,061 39 premiums on loans) towards the extraordinary military and naval expenses of the war.

In addition to these expenses (without taking into the calculation sundry smaller items,) the number of military land warrants issuable under the act of 11th February. 1847, and the act of August 10, 1848, is to be taken into consideration. Under those acts, 65,171 warrants for 160 acres each, and 5,219 for 40 acres each, have already been issued. Claims to the amount of 9,000 have been suspended or rejected, and it is estimated that the number of claims yet to be presented, will amount to 17,000. (See statement marked (I,) hereto annexed.)

The whole amount of warrants issuable under the act above mentioned, may, therefore, be estimated as equal to 90,000, of 160 acres each, which, at $200 each, will amount to $18,000,000. Of course, until these warrants shall be exhausted, a large proportion of the revenue from sales of public lands must be thereby diverted.

My predecessor estimated the revenue from public lands, for the last fiscal year, to be received at the treasury, at $3,000,000.

The actual receipts at the treasury, from that source, in the year ending 30th June, 1848, were $3,328,642 56.

During the calendar years 1847 and 1848, and three quarters of 1849, there were located for patents on military bounty land warrants 5,025,400 acres, amounting, at $1 25 per acre, to the sum of $6,281,750, viz:

In 1847,	239,880 acres.....	$299,850 00
In 1848,	2,288,960 acres.....	2,861,200 00
¾ of '49,	2,496,560 acres.....	3,120,700 00
	5,025,400	$6,281,750 00

See statement marked (J.)

The receipts at the treasury from sales of public lands during the last fiscal year were $1,688,959 55.

It is not probable that additional sales would have been made to the full extent of the number of acres located under the military bounty land warrants, but I think it may be safely considered that this source of revenue may be taken at nearly $4,000,000, of which a part is absorbed by the land warrants; a part, say $1,657,050, (that being the amount paid and payable during the present fiscal year,) is applied to the payment of interest on the loan and treasury notes, under the act of January 28, 1847; and the remainder is pledged to the extinguishment of the debt created under that act. I estimate $2,000,000 per annum of the revenue from lands as diverted by the land warrants and the extinguishment of debt.

During the last fiscal year there were paid, under stipulations in the treaty with Mexico, sums amounting in all to $7,629,108.

Public debts to the amount of $790,566 39 (including treasury notes received for customs and lands) were also paid off or purchased out of the general funds of the treasury and extinguished, besides $382,500 of the stock and treasury notes issued under the act of 1847, purchased out of the land fund and cancelled. See statement marked (K.) Of these sums $890,175 was new debt contracted since the commencement of the war.

The balance in the treasury on the 1st July, 1849, was $2,184,964 28.

The aggregate of these sums, viz:

Balance in the treasury on 1st July, 1849.....	$2,184,964 28
Payments under the treaty.....	7,629,108 00
Payments out of general fund on account of debt.....	790,566 39
Land fund diverted.....	2,000,000 00
Amounts to.....	$12,604,638 67

and would have made a balance in the treasury to that amount on the 1st July, 1849, had none of them been applied to the extraordinary purposes above designated.

During the current fiscal year, there will be required, in May next, for the payment of an instalment to Mexico, $3,540,000, and the land revenue, estimated as diverted, will be $2,000,000—making together $5,540,000, which, added to the aforesaid sum of $12,604,638 67, would make $18,144,538 67. from which, deducting the estimated deficit on the 1st July, 1850, of $5,828,121 66, would have left an estimated balance in the treasury, on that day, of $12,316,417 01. Adding to that balance the instalment to Mexico, due in 1851, $3,360,000, and the revenue from lands diverted, $2,000,000, would make an aggregate of $17,676,417 01, from which deducting the estimated deficit on the 1st of July, 1851, $10,547,092 73, would have made an estimated balance in the treasury, on that day, of $7,-129,324 28.

I have gone into this detail for the purpose of showing that the resources of the country are am-

ple, that the estimated deficit will have arisen from the extraordinary expenses of the war and treaty with Mexico, and that the justly high public credit of the United States, is not endangered by the fact that in this position of affairs, a new loan will be required.

Under these circumstances, I propose that authority be given to raise such sum, not exceeding $16,500,000, as may be found necessary, from time to time, by the issue of stock or treasury notes, on such terms of interest (not exceeding six per cent.) and repayment, as the President, in his discretion, shall, previous to their being issued, think fit to order.

Authority has already been given by the act of March 3d, 1849, to issue stock for the $3,250,000 appropriated to carry into effect the 15th article of the treaty with Mexico.

To be continued.

To the Citizens of North Carolina.

The undersigned having been appointed by the convention held in Greensboro', on the 29th ultimo., to address the people of the State, and of urging most earnestly, your co-operation, in order to secure the charter granted by the last General Assembly to the "North Carolina Railroad Company"—we shall, as we think, most usefully discharge this duty, by simply explaining the action, the present condition of things, and what is positively necessary, in order to organize the company and carry out the views and recommendations of the convention, for the accomplishment of this great State improvement.

The act granting the charter, requires a subscription on the part of individuals of one million of dollars, and the payment of the first instalment of five dollars per share, when the company shall be regarded as formed, and the stockholders are authorized to proceed to the election of a board of 12 directors, who are to elect a president, and have the general management of the affairs of the company. Whenever the president shall cause it to be certified, under the seal of the said company, that one million of dollars have been subscribed, and at least five hundred thousand dollars of stock actually paid in, then there is to be subscribed in behalf of the State, two million of dollars to the capital stock of said company. At the recent meeting of the convention, it was ascertained that upwards of two hundred thousand dollars of the stock had been taken; whereupon, in order to secure the amount necessary to make up the one million, it was resolved by the convention "that the president and directors, in letting out contracts for work and materials, shall, in all cases, give a preference to such stockholders as may propose or desire to become contractors." After the adoption of this resolution, it was proposed that a company of one hundred persons should take what might ever remain unsubscribed of the one million of stock, and thus secure the charter to a certainty. And we are happy to inform you, that 51 names have already been subscribed, requiring 49 more gentlemen of equal spirit, to put the matter beyond all doubt.

Since the adjournment of the convention, as we hear, some twenty or thirty thousand dollars have been taken in Alamance and other places, and it now remains to be seen, if the 49 gentlemen, with the aid of the positive subscriptions, cannot be found in the State, to take the balance. We flatter ourselves, the question has only to be stated to be answered affirmatively. To effect this object, and to give every possible information on the subject, railroad conventions are to be held in the respective counties through which the road is expected to pass, which will be attended by several intelligent gentlemen, and to which all are invited to attend who may take an interest in the matter. And as this may be considered as the last great effort for the improvement of the internal condition of the State, we confidently appeal to any one who may claim to be North Carolinians, and who feel any concern for the elevation of her character and the promotion of her prosperity, to come to our aid in the accomplishment of this great undertaking. We honestly believe those who may subscribe, or who may consent to become one of the company of one hundred for taking the unsubscribed stock, can run no possible risk or loss, or be put to the least inconvenience, beyond the payment of the five dollars on the share, and the lending of their credit to the concern. We say this, as we doubt not that the board of directors will, in good faith, carry out the resolve of the convention in giving to the stockholders the contracts, or of allowing those who may not desire them, to transfer their stock, in part at least, to such as may wish to become contractors. This plan has been adopted by other companies, and has been found to operate most advantageousiy. In conclusion, we tell you the spirit of improvement by means of railroads, is abroad amongst our sister States; that the utility of the system is not only established by the experience of the prudent and practical, but its necessity is rendered absolutely indispensable to all who desire or expect to participate in the advantages of an early and certain market. We appeal then with great confidence to your interest as well as your patriotism, to exert yourselves in behalf of a measure which promises so much to the State, by stopping the tide of emigration, now carrying off so rapidly our most intelligent and enterprising citizens, and which shall vindicate the wisdom of the legislature in its support of a judicious system of internal improvements, and causing every native son to feel a pride in claiming to be a North Carolinian.

R. M. Saunders,
Alexandre McRae,
James Griswold,
John McLeod,
Wm. A. Graham,
Benj. Trollinger,
J. M. Morehead,
J. W. Thomas,
J. B. Lord,
C. J. Fox,
Rufus Barringer,
D. L. Swain.

December 10, 1849.

Finances of Indiana.

We copy the following from the message of the Governor of this State, relative to its financial affairs. We have no fears but that as soon as the progress of the Western States shall enable them to make provision for the payment of the interest on their debts, all of them, even those whose condition is now the most hopeless, will do so. Time only is wanting to make the debt of Illinois as valuable in the market as that of Ohio:—

The message makes a very full exhibit of the financial condition of the State. In 1847, when the arrangement of the State's indebtedness was made with her creditors, the debt, exclusive of interest, was $11,045,000; there has been surrendered and converted into new stock, to 1st of July last, $9,530,000; since July 1st, $33,000; making $9,563,000; leaving yet to come into this arrangement, 1488 bonds, or 1,488,000.

The amount of revenue paid into the State Treasury during the last year, on all accounts, was $441,650, which exceeds the amount paid the previous year, $28,901. The assessment for State purposes for 1849, is $508,537, and for county, road, school, and township purposes, collectively, $630,570; adding to these sums the delinquencies of former years uncollected, amounting to $163,093, and the whole amount on the duplicates for 1849, will be $1,302,202. The number of polls returned for 1849 is $143,720, being an increase over the returns of last year of 7,445.

The value of the entire property of the State subject to taxation, as returned for 1849, is $133,419,056, which is an increase over last year of $4,458,070. The State commenced paying interest with July, 1847, and to the present time has paid five semi-annual payments, amounting in the aggregate, to nearly half a million of dollars, meantime the State stock has been steadily and gradually advancing in value, until it now stands at seventy cents on the dollar, its full value, taking six per cent. interest per annum as the standard.

The semi-annual interest due to creditors, under the two acts of the Legislature of 1846 and 1847, providing for the settlement of the State debt, was punctually paid at the Indian Agency in the city of New York, on the 1st of July last, amounting to $95,300, being 2 per cent. on $4,765,000, the amount of the debt at that time under the arrangement. A portion of this sum, say $79,000, was borrowed of the Commissioners of the Sinking Fund and of the banks. On January, 1850, the interest due will probably reach $100,000, as 230 bonds coming in from July to January will make up that amount. The ordinary expenditures of the State Government for the fiscal year ending on the 31st day of October, 1849, were $74,469. The ordinary expenditures for the current fiscal year are estimated by the Auditor of State at $72,000.

Indiana.

Evansville and Mount Carmel Railroad.—We are informed that the report of Judge Hull, president of the Evansville and Illinois Railroad Company, exhibits the affairs of that body in a prosperous condition. The entire cost of the road from Evansville to Princeton, a distance of 26¼ miles, according to the estimate of the engineer, is $239,007 79-100, equal to $9,000 per mile. This includes the cost of ballasting the road bed with gravel from the Ohio river. The Company have the following means to pay for its construction:

Stock by Vanderburgh county	$100,000
Stock by the city of Evansville	100,000
Individual stock taken	64,000
Making	$264,000

This sum, economically expended, will not only finish the road, but go far towards paying for locomotives, engine houses, machine shops, &c.

We are also informed that a contractor, of standing, has proposed to take the grubbing, grading, and bridging the road from Evansville to Princeton at the engineer's estimate, and complete the same, ready for the wooden superstructure in nine months.

Illinois.

Meredosia and Quincy Railroad.—This proposed road runs from Meredosia, on the Illinois river, to the city of Quincy, on the Mississippi, and embraces what is known as a portion of the Western part of the Northern Cross Railroad. The State recently sold out her interest in this portion of the road, and it is now in the hands of individuals, with reasonable prospects of being constructed at an early day. It passes through one of the richest agricultural districts of the State. We learn that J. J. Shipman has been engaged as chief engineer, and W. P. Whittle, as assistant, and that they will be in the field, in a few days, with a full corps of effective men, to survey the route and estimate the costs. From the facilities afforded for the construction of the route by the ground, abundance of material, wealth and population along the line, we have entire confidence that it will be constructed at an early day, and prove a profitable investment to all concerned.

Tennessee.

Nashville and Chattanooga Railroad.—At the election at Murfreesborough, on the 12th inst., for directors of the Chattanooga Railroad, the following named gentlemen were elected, viz:

V. K. Stevenson, J. M. Bass, A. O. P. Nicholson, Alex. Allison, E. H. Ewing, F. B. Fogg, S. D. Morgan, of Davidson county.

John S. Neil, in place of John Eakin, deceased.

Jeremiah Cleveland, Bedford county.

A. M. Rutledge, Grundy county.

James C. Moore.

William Spence, in place of Levi Wale, declined, Rutherford county.

W. S. Watterson, Coffee county.

Peter S. Decherd, Franklin county.

James A. Whiteside, Hamilton county.

The average vote per individual on each ticket, was for the old board 6 210, and a fraction—for the

opposition 762, and a fraction—the old board being elected by a vote of about 10 to 1, over the new.

At the subsequent meeting of the board, the old officers were unanimously re-elected, viz: V. K. Stevenson, president; Orville Ewing, treasurer, and Jos. F. Gibson, secretary.

The acting engineer, James H. Grant, was also unanimously elected chief engineer.

Georgia.

Savannah and Augusta Railroad.—We are gratified to announce that the president and directors of the above road have already purchased 2000 tons of railroad iron, or enough to reach to Waynesboro A part of this iron has already arrived from Wales, and the rest is looked for soon. It is a beautiful T rail of 56 lbs. to the yard. The road will start from the 79 mile station on the Central road, and contracts will be made at once for the whole distance to Waynesboro. It is determined to finish the road to that point by the 1st of November next, and when finished, it will be incontestibly the best road in Georgia or in the South.—*Savannah Repub.*

Virginia.

Richmond and Danville Railroad.—At a general meeting of the stockholders of the Richmond and Danville Railroad, held at the office of the company in this city, on Friday evening last, Whitmel P. Tunstall, Esq., was re-elected president of the road by a large majority.

The vote stood, for W. P. Tunstall, 1839; Lewis C. Harvie, 672; James C. Crane, 194.

Messrs. A. F. D. Gifford and Horace L. Kent were elected directors.

Iowa.

The total value of property in this State, as ascertained by the assessment recently made, is $18,479,751, being an increase of $3,008,648. Upon this property, the State levies a tax of $47,249 42. The number of acres of land assessed, is 3,150,494 upon which the valuation, with improvements, is put down at $10,349,624; value of town lots and improvements, $2,945,299; capital employed in merchandise, $819,637; mills, manufactories, &c., $319,211; value of horses, $1,272,005; neat cattle, $953,513; sheep, $156,178; hogs, $258,189; pleasure carriages, $167,200; value of gold or silver coin, or bank notes, $213,782; claim or demand for money or other consideration, $540 577; money secured by deed or mortgage, $108,692.

Pennsylvania.

Columbia Railroad.—From a statement of receipts and expenditures of the Philadelphia and Columbia railroad, for the fiscal year ending Nov. 30, 1849, we learn that

The total receipts were.....$587,726 64
The total expenses.....260,544 28

Net profits.....$327,182 36

This is equal to 8 per cent. on $4,000,000, the cost of the road and machinery—a very handsome return for the investment.

New York.

Troy and Rutland Railroad.—We observe from the last Washington County Post, that the engineer, C. L. Prescott, who conducted the surveys of the two rival routes, from the village of Salem to the valley of the Hoosic, has decided in favor of the Cambridge route, upon the following grounds: 1. The Cambridge route, will cost 19 3-4 per cent. less money. 2. It has the advantage of 1-4 the curve, and two-seventh more straight line. 3. It has an advantage of from 50 to 75 per cent. in grade 4. It will accommodate the public better. 5. It can be built in much less time. 6. Its intersections are the most important.

From the Winchester Republican.

Some time since, I noticed the quantity of iron loaded by Mr. J. M. Newman, which notice would have been fuller had I known the quantity received by that gentleman from the furnaces during the month of November. It was 353 tons, 1 cwt. 1 qr.

Since then I have also been informed, that those enterprising iron masters, Messrs. Penman, Thomson & Penman, have had a powerful galvanic battery attached to their furnace, which greatly improves the quality of their iron, chemically, instead of mechanically, combining the carbon with the iron. The use of the galvanic battery in the manufacturing of this staple article is said to be a great and decided improvement, and much credit is due to those gentlemen for their indefatigable energy and enterprise.

This improvement in the manufacture of iron was discovered by Dr. Wall of England, and by him has been applied at Taylor Furnace. He has patented his invention both in England and this country.

During the month of November, the railroad from *this* depot has forwarded—

Flour,.....15,193 bbls.
Merchandise,.....201,735 lbs.
Iron,.....369 tons, 10 cwt.

The agent at Harper's Ferry has received from all points of the road, for the same month—

Flour.....19,921 bbls.
Merchandise,.....652,892 lbs.

Increase of revenue above that of the same month 1848—over $1000.

The wharf at Bull's Falls is already finished, and is covered with immense piles of iron ore, that has been boated down the river to that point for Messrs. Ellicott's. OBSERVER.

Steam Communication between Portland and New York.

The advantages of direct communication with New York, by a line of steamers built for Ocean navigation, have been frequently discussed by our business men, and the value to the interests of the city thereof, universally admitted. The question then arises, will it pay?

Many of our best informed merchants, both at Portland and Eastward, express the confident belief that such an enterprise, if got up on the proper basis, would succeed.

A merchant of New York, connected with one of the leading houses of that city, recently here, expressed the belief that the largest portion of the required capital would be readily subscribed in New York, provided the project was formed here.

To carry out such a plan successfully, requires the concurring support of the mercantile interest of the two cities. Portland has a valuable trade to carry somewhere, and there is a strong conviction on the minds of our leading merchants, that Portland has the same advantages for the wholesale or jobbing business as Boston. The merchants of New York are ready to open a trade *direct* with Maine, whenever it shall please our merchants to go there for their supplies.

The leading New York houses, engaged in the dry goods and grocery line, have signified their willingness to embark in the enterprise. Merchants of Bangor and other eastern cities, assert that their principal purchases would be made at Portland or New York, if the proposed line was established.

Two good boats would be all that would be required at the outset, one leaving New York and the other Portland, weekly. The time required to accomplish the passage, may be reduced to 30 or 35 hours. Leaving Portland and New York, for example, at 4 o'clock P. M. of Saturday, they might be prepared to discharge cargoes at the port of delivery, on Monday morning.

From Portland, by railway and steamboats, the same goods might be delivered on Tuesday, at Eastport, Bangor, Bath. Waterville and intermediate places.

The immediate effect of the carrying out of the proposed enterprise, would be the establishment of importing and jobbing houses in this city. Goods of every description, could then be furnished to the trading community of Maine, as cheaply as at Boston, if not at still lower prices. The trade of Maine is abundantly sufficient to build up a city equal to Boston, if inducements could be held out by our merchants to invite the trade of the State generally. Portland does not at present furnish a market equal to the trade of Maine, and without increased exertions, can scarcely hope to extend very widely her trade with the interior. It is believed that the most efficient movement to attain both these ends, would be the establishment of a line of steam packets direct with New York. P.

Hudson River Railroad.

SUPREME COURT.

Before Judges Jones, Edmonds, Hurlbut and Edwards.

Dec. 27.—The court delivered their decision in the following case:—

Hudson River Railroad.—Judge Jones delivered a most voluminous opinion in this case, which was an application for an injunction to restrain the Hudson River Railroad Company from proceeding with their operations, and to compel them to remove so much of the line as they had already laid down. The learned Judge commenced by stating the provisions of the act, reading several of the sections in detail, and then proceeded to mention, *in extenso*, the grounds of the complaint made by the plaintiffs, and the answers thereto put in by the defendants occupied ground which belonged to the plaintiffs, either in fee or for a term of years; the answer to the objection is that no land had been taken for that purpose, but that which was occupied by and belonged to the municipal authorities of the city; that the plaintiffs had shown no title, in themselves, to any part of the land or soil. It is averred that the two plaintiffs, residing in Canal street, have no pretentions of claim; with respect to one of the other three plaintiffs, in Hudson street, it is stated that those under whom she derived had a lease prior to the grant to the corporation, but the co-assignees are not parties to the complaint, and she, by the terms of her acceptance, had extinguished her right. The city authorities would be equally unauthorised to close the streets, except on the authority of the law, and any obstruction would be a nuisance, punishable at the instance of those who might be specially grieved or damaged thereby. The corporation of the city have, by the ancient charter, never abrogated, and still inforce, the management and regulation of the public sts., and always have, and now are, exercising these powers; they prescribe the sidwalks, and direct the mode and manner of sewerage, &c., for various purposes, and for public and private use, and receive compensation for the use of the vaults under the sidewalks; it would seem that the legal title to the land and soil should reside in them. The court did not stop to examine the antagonistical allegations or claims; or whether the power of a new or an old charter apply to the constitution of the case; or whether it requires all the members of both branches of the corporation in order to make it effectual. These formalities apply to acts of Legislature, and they require, whatever form the bye-law may assume, who has a right to complain, and require the defendants to remove the rails. The plaintiffs cannot complain that the defendants are trespassers on the land; nor require that compensation should be made to them. The rights of the corporation are the only rights which may be said to be usurped; but the corporation imputes no wrong, and takes no step against the railroad being laid down. They tacitly give their assent to the operation. The plaintiffs complain that their lots are injured, and claim compensation, and that the railroad company ought to be restrained until such compensation be made. The right of the defendants to lay down the line will not protect them

from the damages of the persons aggrieved. The plaintiffs insist that they are not to wait until the loss or damage is actually incurred, but that they are entitled to a protective remedy; and they, therefore, apply for an injunction. The injury of which the plaintiffs complain, is the impaired value of their property, by the alleged impediment of crossing the streets, and the desertion of their shops by reason of the danger and difficulty of access to them, and the danger to themselves and their families by the passing of the cars. Upon conflicting affidavits, the court are asked to form a conclusion whether the railroad in its occupancy is liable to the objections urged against it, or is subjected unjustly to these charges. The utility of railroads and their accommodation to the public at large admit of no doubt; but these considerations cannot authorise or justify any encroachments of individual rights; but the plaintiffs can claim no further use of the streets than all other citizens. The example of the Harlem Company shows that the use of railroads in the city, if properly guarded and regulated, is compatible with the simultaneous traffic of all other vehicles. If some inconveniences arise, they are not of such a magnitude as to induce the court to compel the defendants to remove the track already laid down, or restrain them from further proceedings. A much stronger case must be presented to their view, and more imminent danger be proved. to justify their interference.—The court, therfore, felt constrained to deny the injunction.

Judge Edwards said that he and Judge Edmonds agreed with the Chief Justice, and had written their opinions, which could be seen with the clerk.

AMERICAN RAILROAD JOURNAL.

Saturday, December 29, 1849.

Railroad to the Pacific.

We are gratified to find that those parts of the President's Message, and of the Report of Mr. Ewing, having reference to this project, occupy the same ground which we have maintained from the first. They admit the desirableness of the road, and also, that the question of route and of practicability must first be determined by a survey, conducted by competent engineers, the result of which must form the basis of future action. The recommendation for the appointment of a corps of engineers for a survey of the proposed routes will undoubtedly be sanctioned by Congress, and we shall soon be in possession of something beyond mere conjecture.

Declaration of Principles

Of the General Assembly of Illinois, in relation to Internal Improvements within the State.

The following resolutions, embracing a declaration of principles, drawn up by the Hon. Wesley Sloan, of Pope county, (Southern Illinois) were passed by the House on the 3d ult., by a vote of 43 to 27, and by the Senate with only 2 dissenting votes.

Resolved. That the geographical position of Illinois, considered in connection with the construction of railroads within her limits, is one of the greatest natural advantages which she possesses, and which must, under a judicious system of legislative policy, be very instrumental in promoting her general welfare as a state.

2d. That the prosperity of a state or nation consists, not only in the virtue and intelligence of a brave and energetic people—in the richness of her soil and mineral resources—but also in the number and extent of her flourishing towns, cities and villiages.

3d. That any internal improvement, whether constructed under a general or special law, tending in its operation to impede the growth and prospects of cities, towns and villages, within our own borders, ought not to be encouraged.

4th. That the construction which should be given to the 6th section of the 10th article of the Constitution is, that the General Assembly shall encourage improvements that are of an *internal* character and advantage, and not such as are mainly intended to promote *external* interests.

5th. That a railroad commencing at our Eastern boundary, running across the state and terminating at any point on the Mississippi river, opposite St. Louis, and also uniting with contiguous lines of railroad, extending eastwardly through our sister states, either to Cincinnati or the Atlantic cities, would be immensely advantageous to St. Louis, at the same time that it would impede the growth and prosperity of the cities, towns and other localities on the Illinois side of the Mississippi river.

6th. That the connection of the Mississippi river, by continuous lines of railroad, with the Atlantic sea board, is of vital importance to the whole Union; and we willingly invite the construction of railroads passing through the other states to our eastern boundary, promising to grant to them the right ot way, and reserving to ourselves only the privilege of fixing the terminii—a privilege we constitutionally claim, and which we are entitled to exercise by reason of our geographical position.

7th. That the construction of the great Central railroad is a subject of vast importance to Illinois; and all laws, having for their object the completion of the same on proper principles, ought to be encouraged; provided such laws do not infringe too much upon our natural advantages growing out of the geographical position of the state.

Above is the apology presented to the public for refusing a charter for a railroad across this State from Terre Haute to St. Louis. We presume it was not in the contemplation of the originators of this declaration, to make any other application of the principles set forth in it. Its object is to confine the trade of the State within its own limits, and indirectly to tax the travelling and business portion of the country for the purpose of building up commercial towns within its borders.

We have watched carefully the contest which has been going on in this State, and which has terminated as we have seen above. We are entirely satisfied that the principles upon which the declaration is founded are not only unconstitutional in their spirit, but will prove to be injurious to the State in their results, and must sooner or later be abandoned. In subscribing to this declaration, we think that this State has made another grand mistake in her internal improvement policy, of which her history presents such an array.

Every State is bound to do all it legitimately can for the promotion of the interest of its citizens.—But where public works are constructed, it is impossible that all should receive the same benefit from them. Those within reach of them are vastly benfitted, while those at a distance, who may have borne equally the cost of their construction, derive no benefit at all. But as each man's location is a matter of his own choice, a person so situated has no cause of complaint, because if he wishes to be benefitted by canals or railroads he must go within the sphere of their influence. The works cannot run by every man's door, and those who find themselves on routes that are impracticable have no right to complain of those, who, without reference to such works, find themselves occupying more favorable spots. It is impossible but that very unequal benefits should flow from works, the burden of which come equally upon all. But no sane man will denominate such inequalities injustice, nor think of urging such unequal benefits as a reason against a State embarking in works of public improvement.

But it is entirely a different affair to withold from one section privileges which we confer upon another. A government that does this is no longer republic. It is despotic. What is the whole case in Illinois fairly stated? A majority of her people are desirous of building up towns within its own limits, which shall become the marts of trade for her own products, for the purpose of accumulating within herself the wealth which results from trade and commerce. In order to accomplish it denies to the inhabitants of an extensive portion of the State, privileges similar to those conferred on other portions, and refuses to them the right of availing themselves of the most approved means of transporting their products to the most profitable markets. The citizens of one part of the State are therefore directly taxed for the benefit of the other, and if the principles laid down in the declaration are correct, then of course there is no limit to their application but the will of the majority. The people of Southern Illinois are told that they shall not have the privilege of constructing a railroad to the Mississippi opposite to St. Louis, because this city would be enriched by the trade, instead of a town in Illinois. Why not refuse to the people of this section the right to construct an ordinary road to St. Louis, for over it would flow a large amount of trade, to prevent which, is the object of the above enactments. We can see no difference. If it is important that all the marketable products of the State should be sold within its limits, and if it is right and competent to refuse the right to construct railways to a certain portion, for the purpose of accomplishing this object, why not go still further and forbid the opening of all avenues. which will allow such products to go out of their States before they are sold for the benefit of the contemplated cities of Illinois?

We do not believe that the exercise of such powers as these are within the spirit of the constitution of Illinois, or of any other state in the Union. Such a principle is unjust and oppressive in its operation, and cannot of course be constitutional. As it is palpably unjust, it cannot be sustained; and this alone is sufficient reason against taking a step which must so soon be retraced. Public sentiment in this country becomes *law*, so soon as this sentiment is distinctly expressed; and unjust and partial legislation is sure to yield to its demands, however strongly such legislation may be sustained by force ot interest or numbers. Again, the principles laid down in the declaration invade our rights as citizens of this republic. What right has the Legislature of Illinois, to say to a citizen of New York, "if you wish to go to St. Louis through our State, you must go by way of Alton." If this state may compell us to do this, she may with equal reason compell us to take Chicago in our course. If she may put travellers to the inconvenience and expense of passing through her leading towns for the benefit of her citizens, she may with equal justice levy a direct tax upon such travellers. Such a policy would at once array the different States against each other, and instead of presenting an *union* of States, we should be a mere aggregation of conflicting sovereignties. Suppose that the State of Indiana, for the purpose of building up Indianapolis, should enact that all railroads entering that State from the east should terminate at that point, and should refuse the right to construct a road from that point, to the Illinois State line; would not this latter State complain, and with justice, that Indiana had cut her off from the great lines of communication which are now opening throughout the whole country, and was enriching herself at the expense of Illinois? We think that they would complain, and in no very measured tones. We have no doubt but that this State would consider such a course on the part of Indiana, a good ground to resort to force, if redress could be obtained no other

way. The legislators of this State should have kept before themselves the story taught them in their krst lessons. It may turn out that it is their bull which has gored their neighbor's ox. Again, this State is pursuing a mistaken policy, in a money-making point of view. Why do her citizens wish to go to St. Louis for a market? Because they can get a higher price for their products. If Alton offered superior inducements, no one would go to St. Louis. To build up Alton, therefore, those who wish to go to St. Louis, are taxed to the amount of the difference in favor of this city, as a market, in addition to the increased distance, etc. Now such a policy costs more than it comes to. Let us illustrate this matter. Portsmouth, New-Hampshire, has a better harbor than Boston. Suppose that the people of New Hampshire in chartering their roads, had refused to charter any one that did not terminate at Portsmouth, for the purpose of building up that town. We ask a citizen of Illinois whether such would have been a wise policy? It is for the interest of but a small fraction of the inhabitants of New Hampshire to trade with Portsmouth. Boston offers a wider market and a higher price for their products. To render Portsmouth as good a market as Boston, would require a vast outlay, which would operate as a direct tax upon the industry of New Hampshire, and all spent in building up this town, would be so much lost. Who does not see that it is for the interest of that State that all her roads should tend toware Boston, though this city is vastly enriched thereby. Would any citizen of Illinois advise the people of New Hampshire to give any different directions to their road? We think not. The advantages of connecting them with Boston are too obvious to need any argument.

Now we undertake to say that it is just as unwise for the State of Illinois to refuse to her citizens the right to build a road from Terre Haute to St. Louis, as it would be for the State of New Hampshire to refuse a charter to any road having a direction towards Boston. Such policy is neither just nor politic. The true policy of Illinois is to encourage the construction of a road to St. Louis, as well as to Alton and Chicago; to provide every facility for getting to the best market, wherever it may be situated. She now occupies a false position which she must soon abandon. Such unwise legislation inflicts an injury upon that State, as it tends to destroy confidence in her legislation upon other subjects. But it is not to be expected that a State which has made such disastrous mistakes in her internal improvement policy, should grow wise at once. We must expect that she will oscillate from right to left, till a wider experience shall have taught her more wisdom.

Virgina.

We invite attention to the advertisement in another column for proposals for tunnelling the Blue Ridge. This great work will open a direct Atlantic outlet for the valley of Virginia.

We learn that the road from the tunnel to Stanton is making good progress. This portion of it is under the charge of T. C. Ruggles, Esq., of this city, a gentleman very favorably known in this section as a skilful and scientific engineer, and as possessing courteous and engaging manners.—We are happy to see by the responsible trusts confided to him, that he has made a very favorable impression upon the people of Virginia, and we have no doubt but that he will fully justify the impression he has made.

Massachusetts.

Western Railroad—Increase of Trade.—The president of the Western Railroad informs a writer in the Worcester Spy, that the receipts of flour at that place for the year ending December 1, 1849, were nearly double that of the preceding year, amounting in the aggregate to full 75,000 barrels, exclusive of 25,000 forwarded over the Nashua and Worcester Railroad.

Dividend.—The Fitchburg road has declared a dividend of 4 per cent., payable on the 1st of January, to holders of stock on the 15th inst. Also, interest on the new stock at the same time. After paying this dividend, the corporation has a surplus for the year of 50.000 dollars—making the whole amount uf surplus on hand to be 90,000 dollars.

Railroad Fares.—It is proposed, on the 1st of January next, to advance the fare on the four railroads leading west and north from Boston, from 2 to 2 1-2 cents per mile, except for package tickets and steamboat competition. After the first of January, the rates on the seven railroads out of Boston, except for speeial trains, will average about 2½ cents a mile-

---

The attention of railroad companies manufacturing their own cars, as well as car manufacturers is invited to the advertisement in another column of F. S. & S. A. Martine, importers and dealers in car and carriage linings, trimmings, etc. The extensive stock of these gentlemen embrace every article used by manufacturers, and we have no doubt but that our friends and the public will find it for their interest to favor these gentlemen with orders for such articles in this line as they may wish to purchase.

A New Mode of Casting Pipe.

In June last we gave a minute account of a new mode of casting iron pipe. We would now refer our readers to the proceedings of the Maryland Institute in relation to the merits of this new invention, which will be found in another column.

This mode of casting consists simply in pouring melted cast iron into a cylinder of any given size, to which is communicated a rotary motion This distributes the metal equally over the whole inside cylinder. The centrifugal force communicated to the metal disposes of it with perfect regularity, and the moment the iron cools the whole process is accomplished.

Huntsville Railroad.

Delegation to Montgomery.

On Tuesday morning last, Messrs. Nicholas Davis, Judge Lane, D. B. Turner, Samuel Ragland and James S. Donegan, delegates appointed by the Huntsville convention to visit Montgomery and solicit aid from the Legislature, left this place on the cars for that city. We understood from them that it would be left entirely with practical engineers, at what point the road from Huntsville would intersect the Nashville and Chattanooga road. Two points were spoken of—one at Winchester in this State, the other at Bolivar in Alabama. But the stock which has been subscribed, and all that will be taken, has to be unconditional. The object of the company will be to connect with the road at the nearest practicable point, in the direction of the Southern Atlantic.

We are glad to see that our sister State has at length waked up to the importance of railroad improvements, and from the commencement made, and the wealth and character of the gentlemnn engaged in it, we may safely prophecy that the work undertaken will be speedily completed. We hope to live to see the day when we can get upon a railroad car at Chattanooga, and travel East, West, South or North—and, *perhaps*, to the Pacific ocean! —*Chattanooga Gazette.*

Massachusetts.

Old Colony Railroad.—The sixth annual report of the Old Colony Railroad Corporation has been received. From it we take the following abridgement:—

The revenue of the company, for the year ending November 30, 1849, has been: For transportation of passengers, $184,669 50; for general freight, $55,632 23; for gravel for city of Boston, $16,-282 71; mail, rents, and sundries, $18,482 14; aggregate, $275,066 58. The revenue for 1848, was $227,350 27; and for 1847, 171,153 75.

Gross income of the year, $275,066 58; expenses of running, 167,438 71; net income, 107,627 87. The baiance for 1848, was 7,408 25; aggregate, 115,036 12. This income has been appropriated as follows, viz:—

To amount due for rent of Dorcester and Milton, paid 3,510, estimated at 3,800	$7,310 00
To amount paid, and estimated due South Shore Railroad Company, to Dec. 1, 1849	14,967 24
Interest and extra interest on floating debt, due from Nov. 30, 1848, until Jan. 20, 1849, when debt was funded	18,014 93
Interest on new stock, Jan. 20, to July 1, 1849	2,975 02
Interest on bonds, Jan. 20, to July 1, 1849	6,476 26
Interest accrued on bonds, July 1 to Dec. 1. 1849, due Jan. 1, 1850	8,220 00
Interest on temporary loans, Jan. 20, 1849, to Nov. 30, 1849, balance	2,570 64
Balance of income	54,502 03
	115,036 12

The expenses for transportation for the year, have been 167,438 71; increase from last year, 44,-729 50. The miles run during the year, by the different trains, have been 174,558, and the cost of running has been 71 2-10ths cents per mile.

Finances of the Company.—The floating debt, which for several years past proved so serious an incumbrance to the company, is now funded. The capital of the company, as reported by the treasurer, is now represented by 19,651 shares at par, 1,965,-100; bonds at five years, from Jan. 1, 1849, at par, 328.800; aggregate, 2,293,900.

A few outstanding claims for damages are still unascertained.

The floating debt of the company amounts to 50.572 90, to provide for which, we have in cash on hand 32,257 95, and other available assets, more than sufficient to meet the same.

The surplus property has cost over 175,000 and is worth at least that sum. As this property produces but little income, it will be politic to avail of the first favorable opportunity for its sale. The stock of fuel and materials for repairs is large, and in the account of stock just taken, is reported at—

Fuel and stock at stations, and machine shop	26,065 98
Gravel and turnout, &c., exclusive of Mount Hope	19,406 72

The company have earned 4,830 50 by the transportation of ice between Plympton and Boston.

The company own the Abington and Bridgewater Branch, 7¼ miles in length, and lease at 6 per cent., on the cost of the Dorchester and Milton Railroad, 3¼ miles long, and the South Shore, extending 12 miles from Braintree to Cohasset. These lines cost, exclusive of equipment:

Abington and Bridgewater, to Nov. 30, 1849	129,098 87
Dorchester and Milton, to June 1, 1849	119,663 47
South Shore, to Oct. 1, 1849, subject to some redncti6ns for surplus land, &c	362,700 74

Receipts of the Old Colony Railroad Corporation, from passengers and freight, passing to and from the following branches, for six months, ending Sept. 30, 1849:

	Passengers.	Freight.	Total.
Abington & Bri e-water Branch.	5,697 92	2,555 63	8,252 92
Dorchester and Mil-ton Branch	6,916 37	504 62	7,420 99
South Shore Branch	474 70	1,956 00	21,430 70

The freight on the Abington and Bridgewater,

and the passengers on the Dorchester and Milton are increasing.

The general rate of fare on the main line and branches, except the South Shore Railroad, has been about 2¼ cents per mile. Package tickets sold at 2 cents per mile, for 12 miles out of Boston.

The proceeds of season tickets sold, for the year, have been 14,852; last year, 10,138 00.

The directors conclude with the announcement, which has already been made, viz:

After mature reflection, your directors have voted to carry the balance of income forward as a reserved fund in aid of future dividends, and to provide for future contingencies, after deducting from it the cost of the new engine Plymouth, 7,800 dollars, to meet deterioration of the line and its equipment. The income of the past half year has exceeded 150,000 dollars, and the income of the last half of each year on this line, has uniformly since 1845, been more than doubled by the entire year succeeding. The road has anticipated the future by a second track and branches, and stands in fear of no competing line. It commands already a business of 275,066 53.

BALTIMORE, Nov. 26, 1849.

To the Board of Managers of the Maryland Institute:

Gentlemen—The committee appointed to investigate Thomas J. Lovegrove's patent process for giving form to metallic substances while in a liquid or molten state, by centrifugal force or a revolving mould, beg leave to report:

It may be well for the inventor and the public to state that the machine was exhibited at our first annual fair held in September, 1848—lead being the metal used in the operation, but the test being unsatisfactory. At the request of the judge, the machine was removed to the establishment of the inventor, and operated with iron. Owing, however, to the machine being the first of the kind, and imperfect in many of its parts, they were unable to come to any satisfactory conclusion on its merits.

The inventor being anxious that the matter should be further investigated, and having built a more perfect one than that first exhibited, requested the appointment of a committee for that purpose.

This second machine is of a size suitable for making 4 inch pipe 9 feet long with a common socket joint, and was put in operation in the presence of your committee, who, after carefully and impartially examining the machine; the principle upon which it operates, and witnessing its performance, although under unfavorable circumstances (the emproved machine being of rather temporary character, and driven by an engine of insufficient power) are confident that with two machines substantially built and properly arranged, with sufficient power to drive them, the ordinary cast iron water and gas pipes can be manufactured at the rate of one ton per day for each man employed in working the machine, it being understood of course that a sufficient number of men be employed in the work to manage the machines with facility.

Appended to this is the copy of a certificate from Uzziah Wenman, President Croton Aqueduct Board, New York. Signed,

C. W. BENTLEY,
JAS. MURRAY,
ROBERT EARECKSON,
ISAAC BROWN,
} Committee.

OFFICE CROTON AQUEDUCT BOARD, April 28th, 1849.

Mr. Thomas Lovegrove—Sir: At your request I had a number of your cast iron water pipes proved in our press at a pressure of 300 pounds per square inch, and the result was to my entire satisfaction. Respectfully yours,

(Signed.) UZZIAH WENMAN,
President Croton Aqueduct Board.

"Resolved, That in view of the favorable report made by the committee appointed to examine into the invention of Mr. Thomas J. Lovegrove, for making cast iron pipes by a revolving metallic mould, a diploma of the first class be awarded Mr. Lovegrove by the board, as a testimonial of their appreciation of the invention."

I hereby certify that the above is a true extract from the minutes of proceedings of the Board of Managers of the Maryland Institute for the Promotion of the Mechanic Arts.

SAM'A SANDS, Sec. B. of Man.

PHILADELPHIA, DECEMBER 18, 1849.

To the Editor of the Railroad Journal:

In No. 38, of your Journal, Mr. Stratton, of the Novelty Works, brings a subject before your readers, which is not so simple as it appears at first sight. In No. 42, Mr. Detmold suggests an explanation of the fact in question, but I cannot agree to the sense of his interpretation. This subject has agitated the minds of many men, without leading to a satisfactory conclusion as to the cause of the apparent anomaly. The fact that cold cast iron will float on fluid cast iron is generally known, has very little bearing upon our practical manipulations, and is so far unimportant. It is a subject, however, which leads to the investigation on the nature of iron, and deserves on that account more attention than the practical workers in iron will give it credit for.

That cold cast iron sinks *at first*, at the moment of contact, in melted iron, as asserted by Mr. Detmold, is not quite correct. It may have happened, and happen still; this, however, can be at the best but an exception to the rule. We find generally that *all* cold cast iron, by putting it into a vessel and casting fluid iron on it, will keep at the surface and float upon it. Thin pieces of casttngs, or crystals of iron, often show an exception. The second argument of Mr. Detmold, that "crystallization" expands the iron and makes it float, "the same as water when it freezes into ice," is not conclusive; for many scientific men contend, that this specific quality is due to no other substance but water.—The assertion that the expansion—the effect of the crystallisation—is the immediate cause of filling the minutest parts of the mould with metal is a theory which is by many, and also by Mr. Detmold, adopted; but which is not confirmed by close scrutiny. If the expansion caused by solidification is the cause of filling the minutest parts of the mould, why does it happen that white cast iron does not fill the finest parts of a mould? Or why does charcoal iron, and all the strong and pure kinds of metal, not fill the mould as well as weak, cold-short, iron? It is a well settled fact that all the strongest and purest kinds of metal do not fill the mould well. The most impure kinds of pig Iron, which contain besides carbon, also phosphorus and silicon, are the very best for small castings, hollow-ware, etc. For these reasons, bituminous stonecoal iron, as Scotch pig, is the very best for small castings; anthracite p'g is less useful, and charcoal pig the least. It is evidently not the expansion of congelation, which causes the mould to be filled, for pure, white plate iron crystallises more perfectly than any other, and still it does not make sharp castings. Very grey charcoal metal, of good quality does, to all appearances, not crystallise, at least its crystals are very minute, still it is not the very best iron for small castings.

If expansion of the metal, after assuming a permanent form, was the cause of filling the mould, any kind of cast iron ought to fill the minutest parts of the mould, because this specific quality of expansion is the property of all cast iron. By close examination, we find that foundry metal revived from ores which make good forge pig does not fill the mould well, no matter how grey it may be. To this class belongs all charcoal iron made from the magnetic oxides, spathic ore, the carbonates generally, from specular ore, and sulphurous ores. With the exception of the latter, all the iron made from the above ores constitutes good forge iron, but is very seldom a good foundry metal. Sulphurous iron is neither good for the one nor the other. Pig iron, made from bog ores, or the hydrates of the coal formation, also the various kinds of hematite, constitutes the best foundry metal. These ores generally contain phosphorus, and the pig iron always more silicon, than the pig manufactured from primary ores. We find, further, that anthracite iron fills the mould better than charcoal iron, coke iron better than anthracite, and grey bituminous coal pig is the very best for fine castings. It is not the amount of carbon which qualifies the metal for castings, for the very whitest metal made from spathic ore contains more carbon and is more fusible, than the very greyest of the stonecoal iron,—There must be another cause for the iron filling the mould.

The expansion of iron in cooling is considerable, for the melted iron has a far smaller specific gravity than the congealed iron. The expansion of iron by heat is $\frac{1}{800}$ between the freezing and boiling of water, and as iron fuses at 2800°, one cubic foot of congealed iron will be expanded by that temperature to

$$180° : 2800 = \frac{1}{800} : \frac{15{\cdot}5}{800}$$

$$\frac{1728}{800}\ 15{\cdot}5 + 1728 = 1761{\cdot}5$$

cubic inches, which of course diminishes its specific gravity in the same proportion. According to this, cold iron cannot float on melted iron, which is actually the case, if the iron is very compact and broken into small pieces.

Mr. Stratton in objecting to Mushet's theory, is perfectly right; for in the speculations of this writer are contradictions incompatible with common sense. Mushet however is right so far as the fact is concerned that cold cast iron assumes a larger *bulk* than liquid iron; but he wisely does not say a greater specific gravity. If we distinguish between bulk and specific graviiy, the solution of this problem is not so very difficult, and the apparent contradiction ceases.

Crude iron is a combination of iron, carbon, sulphur, phosphorus, silicon, silex, calcium, lime, manganesium, etc. Among these substances the two first, namely, carbon and sulphur, can be evaporated. Phosphorus adheres firmly to the cast iron, and cannot be separated from it. In remelting crude iron, carbon, sulphur, silicon, calcium, etc., may be partly removed, but not so phosphorus; this will permanently remain with the cast iron if extraordinary means are not employed to remove it. Phosphorus never leaves the iron until most of the carbon and the whole of all other substances are driven off. Silicon and calcium will also remain along with the carbon. In remelting iron, either in a cupola or a reverberatory furnace, some of the carbon and other impurities are removed: and in observing the time or the degree of heat at which carbon is most easily expelled, we find that just at the time of transition from the congealed to the fluid state, and from the fluid to the state of congelation, the carbon is most easily expelled. This fact can be observed almost daily at the puddling furnace or the forge fire. Any kind of crude iron, if it is *melted in* too hot, in the puddling furnace or the forge, works slow, the carbon and other impurities will not separate from it. The workmen,

therefore, avoid melting the iron, they break up the crude iron before it melts. Iron worked in this way forms a pasty mass, in which state it parts more readily with its carbon. If it accidentally happens that the iron is melted, water or other cold substances not injurious, is thrown into the furnace, to cool the iron down to the point of congelation. The time and labor spent in cooling the furnace is generally considered as lost. The foregoing fact, which could be illustrated by many others of a similar nature, shows very conclusively that carbon will separate most easily when the iron is just at the point of melting, or at the point of congelation.

Carbon cannot be expelled from the iron in its pure state; it is to be combined first with oxygen, and then it will escape, either as carbonic oxide, or carbonic acid. The oxygen may be derived from the atmosphere, the decomposition of water, or from any oxidized matter, as silex, lime, which may be in the iron. The carbonic oxide gas thus formed cannot escape from the interior of melted iron, particularly if this is in the act of congealing, and will consequently form larger or smaller cavities in the body of cast iron. In white iron, or very strong pure iron, we frequently find large hollows, or cavities, from an eighth of an inch to several inches in diameter. In some kinds of grey cast iron we detect these hollows only by means of the microscope, in others they are perfectly invisible, but must be there, reasoning by analogy.

If the above is the true explanation of this apparent exception to a general law of nature, we are reconciled to the truth of expansion by heat. The expansion of cast iron at the moment of congelation is therefore a specific quality of *cast iron*, depending altogether on the carbon and sulphur combined with it.

The foregoing theory on the expansion of cast iron in cooling, explains very clearly and comprehensively why iron of great purity and cohesion is not qualified for fine castings. Such iron does not contain sufficient impurities to keep it for so long a time liquid as is necessary to fill the finer impressions of the mould. The impurities in such iron are chiefly carbon, which is quickly destroyed by coming in contact with the mould. The iron thus deprived of the means of continuing fluid, chills, or crystallizes, no matter how hot it may be. This however alludes to no other impurities than carbon and sulphur, because both are volatile. Impurities which increase the fusibility of iron, but are not volatile, cannot cause expansion, and are most effectual in retaining the fluidity of iron, and are on that account most advantageous for small castings. Impurities, which are not volatile and increase the fusibility of iron, are phosphorus, silicon, calcium, manganesum; these are the most common; others are copper, tin, silver, and a few other metals. Zinc and antimony do not combine with iron.

The uncontrollable expansive or repulsive force, which is manifested in the passage of water into ice, may depend upon a similar cause to that of the expansion of cast iron, but it is not our province to speculate on this phenomenon. The particles of water hardened into ice, are, according to our prejudices, derived from common observations, in close contact, and still the specific gravity af ice compared with water is but 0·94.

It is an invariable law of nature that accession of heat increases the repulsive force of homogeneous atoms. It diminishes specific gravity, and causes the changes from solid to liquid, and from liquid to aeriform. An exception to this law appears to be in the solidification of iron and water, but by close investigation we shall find it to be but a specific quality of a compound matter.

Respectfully yours,

FRED. OVERMAN.

To Contractors.

BLUE RIDGE TUNNEL.—The Contractor for the BLUE RIDGE TUNNEL, having failed to come forward and comply with his engagements, notice is hereby given that PROPOSALS will again be received at the Office of the Board of Public Works, until the 21st of January, 1850, for the construction of the Tunnel and approaches.

The Tunnel will be 4260 feet long, 21 feet high and 16 feet wide, with a ditch on each side; it will pass 700 feet under the top of the Mountain and decline from West to East at the rate of 70 feet to the mile. The approaches will be in the aggregate about 2000 feet long, and consist of deep cuts, high embankments, some walling and bridging.

Proposers who have not already examined the localities will do well to call at the office of the Engineer, on the spot, where they will obtain all necessary information.

The payments will be CASH, with a reservation of 20 per cent till the entire completion of the work; besides which, the contractor is required by law to give bond, with satisfactory bond and security in Virginia. The amount of the bond required will be thirty thousand dollars.

The best testimonials and an energetic prosecution of the work are expected: the contract and bond to be executed within *ten days* after the letting, and the work to begin *bona fide* within sixty days after the same period.

C. CROZET.
Engineer Blue Ridge Railroad.

Terms of proposals and specifications may be obtained at both offices.

Norwich Car Manufactory FOR SALE.

WILL BE SOLD at public auction on the premises, on Wednesday, the 2d day of January next, at 10 o'clock A.M., the entire establishment and property of the Norwich Car Manufactory, consisting of

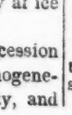
1 Brick, slate roof building, 50 by 150 feet, 2 stories, used for setting up cars, cabinet work, upholstery, etc.
1 Brick, slate roof building, 40 by 190 feet, 1 story, used for blacksmith and machine shop.
1 Brick, slate roof, engine and dry house, 30 by 40.
1 Lumber house.
2 Wood buildings, 50 by 64, and 54 by 120 feet, for painting and finishing cars.
1 Barn, 18 by 28 feet.
1 Wood dwelling house, 21 by 28 feet.
1 Brick block, six tenaments, two stories.
A number of building lots.

Together with all of the machinery, tools and fixtures connected with the same, consisting of—steam engine and boilers, several plaining and sawing machines, turning lathes, boaring, punching, morticing, and a variety of other labor saving machines, constituting as complete and extensive an establishment for the manufactory of Railroad Cars as any in the country, and capable of working one to two hundred hands, and doing a business of $200,000 or more per annum.

It is situated on the Norwich and Worcester Railroad, half a mile from the city of Norwich, at the head of navigation of the River Thames, affording the most desirable facilities for the transportation of cars and materials, and in the immediate vicinity of various and extensive manufacturing and mechanical establishments. It has been in operation about two years, several of the buildings having been completed the present year. The whole, with the exception of the vacant lots, is leased on favorable terms for four years from February next. For further information apply to J. G. W. TRUMBALL, } Trustees
WALTER LESTER. }

October 24, 1849.

PATENT MACHINE MADE HORSE-SHOES.

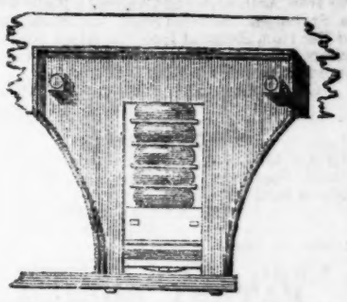


The Troy Iron and Nail Factory have always on hand a general assortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.

P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

FULLER'S PATENT INDIA RUBBER SPRING.



THESE SPRINGS ARE THE CHEAPEST, the lightest and most durable of any yet known. They are easily applied to new or old cars, and there is small possibility of any accident occurring to them.

Other parties through Mr. Ray set up claims to an India Rubber Spring which, though the same in principle, is very inferior in its working and durability.—Actions are in progress for an Infringement on Fuller's Patent against parties using that Spring.

The superiority of Fuller's Spring over that claimed by Mr. Ray is fully established and has frequently been testified to. The following are from gentlemen who have had much experience with both Springs.

"It will afford me pleasure to recommend your springs to the companies in this region, in preference to Ray's which I am confident are inferior in mechanical arrangement to yours." JOHN M'RAE,
Engineer S. Carolina R. R., Charleston.

"I do not hesitate to allow you to say that I concur in Mr. M'Rae's opinion that Ray's springs are inferior in mechanical arrangement to Fuller's. I repeatedly expressed that opinion long before Mr. M'Rae had seen your springs (as I believe) and entertain it still." WM. PARKER,
Gen'l Supt. of Baltimore and Ohio R. R.

Office B. & P. R. R. Co.,
Boston, 20th December, 1849.

"This company have cars fitted up with both Ray's and Fuller's 'Metallic India Rubber Springs,' and I do not hesitate to say that Fuller's arrangement is *very much superior* to Ray's.
W. RAYMOND LEE, Supt.

The following result has been obtained by experiment upon one railroad.

A set of Trucks fitted with Steel Springs cost	$190·77	and weigh	2355 lbs.
The same with Fuller's Springs, . . .	131·71	"	1911 lbs.
Difference, . . .	$59·06	"	444 lbs.

Not only is there an advantage in the cost, but owing to the great reduction in weight, the car can be made lighter throughout, and so an enormous saving in weight may be effected in a Train.

G. M. KNEVITT, 38 Broadway, N. Y.,
General Agent for the U. S.

The Springs can also be had of
JAMES LEE & CO., 18 India Wharf, Boston, &
JAS. THORNLEY, 110 Chestnut St., Philad.

NOTICE.

TO BRIDGE BUILDERS, BRIDGE COMPANIES, and *Other Individuals* and *Associations*, who have constructed or used Bridges involving the combined principle of *Bracing*, *Counter-bracing* and *Trussing* by means of counteracting braces, keys, wedges, screws, etc., as tet forth and explained in my Bridge Patent of 1830, in the words following, to wit: "*A system of Counter-bracing, by means of which the truss frames are rendered stiff and unyielding, and the bridge kept in uniform action whether loaded or unloaded*"—NOTICE is hereby given, that in all cases in which said combined principle has been introduced into bridges, without due license or authority from me, and without my having been duly remunerated therefor, will be regarded as infringements upon my rights and privileges, and that an amicable adjustment and settlement of all my claims in the primeses may be effected by prompt application to my duly authorized Agents therefor, viz: Messrs. Clinton, Knight and Brother, of Cincinnati, Ohio, or Daniel A. Webster, Esq., 8 Pell street of the city of New York.

STEPHEN H. LONG, Patentee.
Louisville, December 10, 1849.

Iron.

Pig Iron, Anthracite and Charcoal; Boiler and Flue Iron, Spring and Blistered Steel, Nail Rods, Best Refined Bar Iron, Railroad Iron, Car Axles, Nails, Stove Castings, Cast Iron Pipes of all sizes, Railway Chairs of approved patterns' for sale by

COLEMAN, KELTON & CAMBELL,
109 N. Water St., Philadelphia.

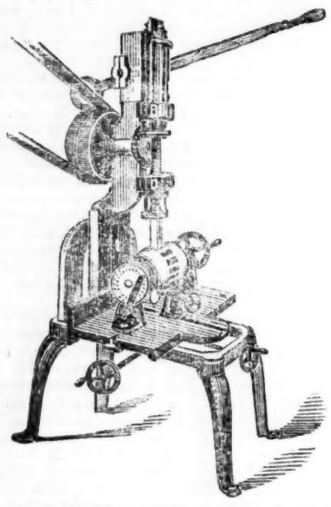
Cop Waste.

CLEAN COP WASTE, suitable for cleaning Railroad, Steam boat and Stationary Engines, constantly an hand and for sale by

KENNEDY & GELSTON,
5½ Pine St., New York.

October 27, 1849, 3m

Capt. Alfred Swingle's PATENT BORING & MORTISING MACHINE.



The above Machine was invented by A. SWINGLE, of Texas, in 1846, and Letters Patent were taken out in July, 1848. As a labor saving Machine it stands unrivalled even in these days of improvements. Its uses are innumerable; it may be successfully applied to Doors, Sashes, Carriages, Wheel-Hubs, and in fact to all kinds of work where the Auger and Chisel can be brought to bear.

The only limit to the speed of the working of this machine is the heating of the tools used. It will perform at least the labor of twelve men, and in vastly better manner, and can be worked equally well by steam power or by hand. It has been used and has given universal satisfaction.

For further information apply to H. B. TEBBETTS, 40 Wall St., New York, to whom all orders are to be addressed.

New York, December 15, 1849.

The New York Iron Bridge Co.

LATELY KNOWN AS
Rider's Patent Iron Bridge Co.

THE Company which has hitherto furnished these Bridges, under the patent granted to the late Nathaniel Rider, deceased, have become satisfied that all the principles embraced in their construction, are included in a previous patent, granted in the year 1839, to Col. Stephen H. Long, of U. S. Engineers, and by him designated as "Long's Suspension Bridges," and have therefore made an arrangement with Col. Long, by which they have secured the exclusive right to make and vend these Bridges throughout the whole United States.

The only change consequent upon the new arrangement will be found in the name and style of the Company. The parties composing it being the same, the construction of the Bridges will be essentially the same.

August 4th, 1849. M. M. White, Agent,
au7tf No. 74 Broadway, New York.

Wanted,

A Second Hand Locomotive, weighing from 10 to 12 tons. It is required that in answer, it will be stated, whether the engine has inside or outside connections—the price of the same delivered at Portland, Maine, and terms of payment expected. Address

VIRGIL D. PANIS,
President Buckfield Branch Railroad,
Portland, Maine.

November 10, 1849. 3t45

NOTICE TO

Superintendents of Railroads.

TYLER'S PATENT SAFETY SWITCH.—The undersigned would respectfully call their attention to his Patent Safety Switch, which from long trial and late severe tests has proved itself perfectly reliable for the purpose for which it was intended. It is designed to prevent the train from running off when the switch is set to the wrong track by design or accident. The single rail or gate switch is established as the best and safest switch for the ordinary purpose of shifting cars from one track to another, but it is liable to the serious evil of having one track open or broken when connected with the other. My improvement entirely removes this evil, and while it accomplishes this important office, leaves the switch in its original simplicity and perfection of a plain unbroken rail, connecting one track with the other ready for use.

The following decision of the Commissioner of Patents is respectfully submitted to Railroad Engineers, Superintendents, and all others interested in the subject. P. B. TYLER.

(COPY.)

UNITED STATES PATENT OFFICE,
Washington City, D.C., April 28th, 1846.

SIR: You are hereby informed that in the case of the interference between your claims and those of Gustavus A. Nicolls, for improvements in safety switches—upon which a hearing was appointed to take place on the 3d Monday in March, 1846, the question of priority of invention has been decided in your favor. Inclosed is a copy of the decision. The testimony in the case is now open to the inspection of those concerned.

Yours respectfully, EDMUND BURKE,
Commissioner of Patents.

To Philos B. Tyler.

Any further information may be obtained by addressing P. B. TYLER, Springfield, Mass., or JOHN PENDLETON, Agent, 149 Hudson St., New York.

34tf

ENGINEERS.

Arrowsmith, A. T.,
Buckfield Branch Railroad, Buckfield, Me.

Bancks, C. W.,
Civil Engineer, Vicksburg, Miss.

Berrien, John M.,
Michigan Central Railroad, Marshall, Mich.

Buckland, George,
Troy and Greenbush Railroad.

Clement, Wm. H.,
Little Miami Railroad, Cincinnati, Ohio.

Cozzens, W, H,,
Engineer and Surveyor, St. Louis, Mo.

Davidson, M. O.,
Eckhart Mines, Alleghany Co., Maryland.

Fisk, Charles B.,
Cumberland and Ohio Canal, Washington, D. C.

Felton, S. M.,
Fitchburgh Railroad, Boston, Mass.

Floyd-Jones, Charles,
South Oyster Bay, L. I.

Gzowski, Mr.,
St. Lawrence & Atlantic Railroad, Montreal, Canada.

Gilbert, Wm. B.,
Rutland and Burlington Railroad, Rutland, Vt.

Grant, James H.,
Nashville and Chattanooga R. R., Nashville, Tenn.

Harry, P.,
Binghamton, New York.

Holcomb, F. P.
Southwestern Railroad, Macon, Ga.

Higgins, B.
Mansfield and Sandusky Railroad, Sandusky City, O.

Johnson, Edwin F.
New York and Boston Railroad, Middletown Ct.

Latrobe, B. H.,
Baltimore and Ohio Railroad, Baltimore, Md.

Miller, J. F.,
Worcester and Nashua Railroad, Worcester, Mass.

Morris, Elwood,
Schuylkill Navigation, Schuylkill Haven, Pa.

Morton, A. C.,
Atlantic and St. Lawrence Railroad, Portland, Me.

McRae, John,
South Carolina Railroad, Charleston, S. C.

Nott, Samuel,
Lawrence and Manchester Railroad, Boston,

Reynolds, L. O.,
Central Railroad, Savannah, Ga.

Roebling, John A.,
Trenton, N. J.

Roberts, Solomon W.,
Ohio and Pennsylvania Railroad, Pittsburgh, Pa.

Robinson, James P.,
Androscggin & Kennebec Railroad, Waterville, Me.

Schlatter, Charles L.,
Northern Railroad (Ogdensburg), Malone, N. Y.

Stark, George.,
Bost., Con. and Mont. R. R., Meredith Bridge, N. H.

Steele, J. Dutton,
Pottstown, Pa.

Trimble, Isaac R.,
Philad., Wil. & Baltimore Railroad, Wilmington, Del.

Tinkham, A. W.,
United States Fort, Bucksport, Me.

Thomson, J. Edgar.,
Pennsylvania (Central) Railroad, Philadelphia.

Whipple, S.,
Civil Engineer and Bridge Builder, Utica, N. Y.

Williams, E. P.,
Auburn and Schenectady Railroad, Auburn, N. Y.

Williams, Charles H.,
Milwaukie, Wisconsin.

BUSINESS CARDS.

George O. Robertson,
Broker in Scotch and American Pig Iron; Bar Iron, Lead, Spelter, Tin, Copper, etc.,
NO. 4 LIBERTY PLACE, MAIDEN LANE,
(Near Broadway,)
NEW YORK

DUNLAP'S HOTEL,
On the European Plan,
NO. 135 FULTON STREET,
Between Broadway and Nassau St.,
NEW YORK.

Manufacture of Patent Wire ROPE AND CABLES,
For Inclined Planes, Suspension Bridges, Standing Rigging, Mines, Cranes, Derrick, Tillers, &c., by
JOHN A. ROEBLING, Civil Engineer,
TRENTON, N. J.

Samuel D. Willmott,
MERCHANT, AND MANUFACTURER OF
CAST STEEL WARRANTED SAWS,
IMPORTER OF THE
GENUINE WICKESRLY GRINDSTONES,
NO. 8 LIBERTY STREET,
NEW YORK.

Doremus & HarriS,
ANALYTICAL & CONSULTING CHEMISTS,
179 BROADWAY, NEW YORK.
☞SCHOOL OF CHEMISTRY.☜

Dudley B. Fuller & Co.,
IRON COMMISSION MERCHANTS,
No. 139 GREENWICH STREET,
NEW YORK.

Railroad Car Manufacturer's Furnishing Store.

F. S. & S. A. MARTINE,

IMPORTERS AND MANUFACTURERS OF

RAIL ROAD CAR & CARRIAGE LININGS,

PLUSHES, CURTAIN MATERIALS, ETC.,
112 WILLIAM ST., NEAR JOHN.

3-4 and 6-4 Damasks, Union and Worsted; Moreens, Rattinetts, Cloths, Silk and Cotton Velvets, English Buntings

Walter R. Johnson,

CIVIL AND MINING ENGINEER AND ATTORNEY for Patents. Office and Laboratory, F St., opposite the Patent office, Washington, D. C.

S. W. Hill,

Mining Engineer and Surveyor, Eagle River, Lake Superior.

Starks & Pruyn,

MANUFACTURERS OF ALL KINDS OF

STEAM BOILERS,

52 and 54 Liberty, corner of Pruyn street

Nathan Starks, ALBANY. Special Partner
Wm. F. Pruyn, R. H. Pruyn.

Iron Railing, Bank and Vault Doors, Iron Shutters Bridge and Roof Bolts, Heavy Jobbing and Forging of all kinds.

☞ For particularss ee Adv. in another column.

To Engineers and Surveyors.

E. BROWN AND SON Mathematical inst. makers No. 27 Fulton Slip, New York, make and keep for sale, Theodolites, Levelling inst., Levelling rods, Surveyors Compasses, and Chains, Cases of Mathematical drawing insts. various qualities, together with a general assortment of Ivory Scales and small insts. generally used by Engineers.

Samuel Kimber & Co., COMMISSION MERCHANTS

WILLOW ST. WHARVES, PHILADELPHIA.

AGENTS for the sale of Charcoal and Anthracite Pig Iron, Hammered Railroad Car and Locomotive Axles, Force Pumps of the most approved construction for Railroad Water Stations and Hydraulic Rams, etc., etc.

July, 27, 1849.

James Herron, *Civil Engineer*,

OF THE UNITED STATES NAVY YARD,
PENSACOLA, FLORIDA.,
PATENTEE OF THE

HERRON RAILWAY TRACK.

Models of this Track, on the most improved plans, may be seen at the Engineer's office of the New York and Erie Railroad.

To Railroad Companies.

—WROUGHT IRON WHEELS—
SAFETY AND ECONOMY.

NORRIS' LOCOMOTIVE WORKS,
SCHENECTADY, NEW YORK,

Are Manufacturing Wrought Iron Driving, Truck, Tender, and Car Wheels—made from the best American Iron. Address E. S. NORRIS.

May 16, 1849.

Machinery Warehouse.

S. C. HILLS, No. 43 Fulton street, New York, has constantly for sale Steam Engines, Boilers, Lathes, Chucks, Drills, Planers, Force and Suction Pumps; Tenoning, Morticing and Boring Machines, Shingle Machines, Bolt and Nut Machines, Belting, Oil, Iron and Lead Pipe; Rubber, Percha and Leather Hose, &c., &c.

S. C. H.'s arrangements with several machine shops are such that he can supply, at very short notice, large quantities of machinery.

November 23, 1849.

Cruse & Burke,

Civil Engineers, Architects and Surveyors,
Office, New York State Institution of Civil Engineers,
STATE HALL, ALBANY., N. Y.

Drawings, specifications and surveys accurately executed. Pupils instructed theoretically and practically at a moderate premium.

May 26, 1849.

Eaton, Gilbert & Co.,

Railroad Car, Coach and Omnibus Builders,
TROY, N. Y.

Hudson River Foundry, THOMAS & COLLINS,

130 Quay Street, Albany.

To Railroad & Navigation Cos.

MR. A. BUTT HEWSON, *Civil Engineer*, offers his services to Companies about to carry out the surveys or works of a line of Navigation or Railroad. He can give satisfactory references in New York City as to his professional qualifications; and will therefore merely refer here to the fact of his having been engaged for upwards of two years conducting important Public Works for the British Government.

Communications will find Mr. Hewson at the office of the Railroad Journal, 54 Wall Street, New York.

Alfred W. Craven,

Chief Engineer Croton Aqueduct, New York.

Manning & Lee,

GENERAL COMMISSION MERCHANTS,
NO. 51 EXCHANGE PLACE,
BALTIMORE.

Agents for Avalon Railroad Iron and Nail Works. Maryland Mining Company's Cumberland Coal 'CED —'Potomac' and other good brands of Pig Iron.

IRON.

IRONDALE PIG METAL, MANUFACTURED and for sale by the Bloomsburg Railroad Iron Co.
DUDLEY FISHER, Treasurer.
75 N. Water St., Philadelphia.

Railroad Iron.

500 Tons, afloat, weighing 57 pounds per lineal yard, for sale by
COLLINS, VOSE & CO.,
158 South St.

New York, November 17, 1849. 1m46

Railroad Iron.

THE Undersigned, Agents for Manufacturers, are prepared to contract to deliver Rails of superior quality, and of any size or pattern, to any ports of discharge in the United States.

COLLINS, VOSE & CO.,
158 South St.

New York, November 17, 1849.

Railroad Iron.

1600 Tons, weighing 60½ lbs. per yard.
185 " " 57½ "
580 " " 53 "

of the latest and most approved patterns. For sale by
BOORMAN, JOHNSTON & CO.,
119 Greenwich street.

New York, Oct. 13, 1849.

Railroad Iron.

THE Undersigned have on hand, ready for immediate delivery, various patterns of Iron Rails, of best English make, aud manufactured in conformity with special specifications.

They offer also to import and contract to deliver ahead—on favorable terms.

DAVIS, BROOKS, & CO.,
68 Broad street.

New York, Oct. 11, 1849.

☞ Drawings and Patterns of the most approved Rail—and specifications of quality and make of same, are on hand at their office, for examination of parties who may desire to inspect the same. D., B. & Co.

Oct. 11, 1849.

CUT NAILS OF BEST QUALITY, BAR IRON (including Flat Rails) manufactured and for sale by
FISHER, MORGAN & CO.,
75 N. Water St., Philadelphia.

Railroad Iron.

THE Undersigned offer for sale 3000 Tons Railroad Iron at a fixed price, to be made of any required ordinary section, and of approved stamp.

They are generally prepared to contract for the delivery of Railroad Iron, Pig, Bar and Sheet Iron—or to take orders for the same—all of favorite brands, and on the usual terms. ILLIUS & MAKIN.
41 Broad street.

March 29 1849. 3m.13

Glendon Refined Iron.

Round Iron, Band Iron, Hoop Iron,
Square " Flat " Scroll "
Axles, Locomotive Tyres,

Manufactured at the Glendon Mills, East Boston, for sale by
GEORGE GARDNER & CO.,
5 Liberty Square, Boston, Mass.

Sept. 15, 1849. 3m37

PATENT HAMMERED RAILROAD, SHIP & BOAT SPIKES. — The Albany Iron Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes from 2 to 12 inches in length, and of any form of head From the excellence of the material always used in their manufacture, and their very general use for rail roads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscribers at the works will be promptly executed.

JOHN F. WINSLOW, *Agent.*
Albany Iron and Nail Works, Troy, N. Y.

The above Spikes may be had at factory prices, of Erastus Corning & Co Albany; Merritt & Co., New York; E. Pratt & Brother, Baltimore, Md

LAP—WELDED WROUGHT IRON TUBES

FOR

TUBULAR BOILERS,

FROM 1 1-2 TO 8 INCHES DIAMETER.

These are the ONLY Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers

THOMAS PROSSER,
Patentee.
28 Platt street, New York.

Railroad Iron.

THE UNDERSIGNED ARE PREPARED TO contract for the delivery of English Railroad Iron of favorite brands, during the Spring. They also receive orders for the importation of Pig, Bar, Sheet, etc. Iron. THOMAS B. SANDS & CO.,
22 South William street,

February 3, 1849. New York.

Iron Store.

THE Subscribers, having the selling agency of the following named Rolling Mills, viz: Norristown, Rough and Ready, Kensington, Triadelphia, Pottsgrove and Thorndale, can supply Railroad Companies, Merchants and others, at the wholesale mill prices for bars of all sizes, sheets cut to order as large as 58 in. diameter; Railroad Iron, domestic and foreign; Locomotive tire welded to given size; Chairs and Spikes; Iron for shafting, locomotive and general machinery purposes; Cast, Shear, Blister and Spring Steel; Boiler rivets; Copper; Pig iron, etc., etc.

MORRIS, JONES & CO.,
Iron Merchants,
Schuylkill 7th and Market Sts., Philadelphia.

August 16, 1849. 1y33

Railroad Iron.

THE MOUNT SAVAGE IRON WORKS, Alleghany county, Maryland, having recently passed into the hands of new proprietors, are now prepared, with increased facilities, to execute orders for any of the various patterns of Railroad Iron. Communications addressed to either of the subscribers will have prompt attention. J. F. WINSLOW, *President*
Troy, N.Y.
ERASTUS CORNING, Albany.
WARREN DELANO, Jr., N.Y.
JOHN M. FORBES, Boston.
ENOCH PRATT, Baltimore, Md.

November 6, 1849.

Railroad Iron.

THE SUBSCRIBERS ARE PREPARED TO take orders for Railroad Iron to be made at their Phœnix Iron Works, situated on the Schuylkill River, near this city, and at their Safe Harbor Iron Works, situated in Lancaster County, on the Susquehannah river; which two establishments are now turning out upwards of 1800 tons of finished rails per month.

Companies desirous of contracting will be promptly supplied with rails of any required pattern, and of the very best quality.

REEVES, BUCK & CO.,
45 North Water St., Philadelphia.

March 15, 1849.

Monument Foundry.

A. & W. DENMEAD & SON,
Corner of North and Monument Sts.,—Baltimore,
HAVING THEIR
IRON FOUNDRY AND MACHINE SHOP
In complete operation, are prepared to execute faithfully and promptly, orders for
Locomotive or Stationary Steam Engines,
Woolen, Cotton, Flour, Rice, Sugar Grist, or Saw Mills,
Slide, Hand or Chuck Lathes,
Machinery for cutting all kinds of Gearing.
Hydraulic, Tobacco and other Presses,
Car and Locomotive patent Ring Wheels, warranted,
Bridge and Mill Castings of every description,
Gas and Water Pipes of all sizes, warranted,
Railroad Wheels with best faggotted axle, furnished and fitted up for use, complete

☞Being provided with Heavy Lathes for Boring and Turning Screws, Cylinders, etc., we can furnish them of any pitch, length or pattern.

☞ Old Machinery Renewed or Repaired—and Estimates for Work in any part of the United States furnished at short notice.

June 8, 1849.

Iron Wire.

REFINED IRON WIRE OF ALL KINDS, Card, Reed, Cotton-flyer, Annealed, Brcom, Buckle, and Spring Wire. Also all kinds of Round, Flat or Oval Wire, best adapted to various machine purposes, annealed and tempered, straightened and cut any length, manufactured and sold by

ICHABOD WASHBURN.

Worcester, Mass., May 25, 1849.

American and Foreign Iron.

FOR SALE,

300 Tons A 1, Iron Dale Foundry Iron.
100 " 1, " " "
100 " 2, " " "
100 " " Forge "
400 " Wilkesbarre " "
100 " "Roaring Run" Foundry Iron.
300 " Fort " "
50 " Catoctin " "
250 " Chikiswalungo " "
50 " "Columbia" "chilling" iron, a very superior article for car wheels.
75 " "Columbia" refined boiler blooms.
30 " 1 x ⅛ Slit iron.
50 " Best Penna. boiler iron.
50 " "Puddled" "
50 " Bagnall & Sons refined bar iron.
50 " Common bar iron.

Locomotive and other boiler iron furnished to order.

GOODHUE & CO.,
New York. 64 South street

American Pig, Bloom and Boiler Iron.

HENRY THOMPSON & SON,
No 57 South Gay St., Baltimore, Md.,

Offer for sale, *Hot Blast* Charcoal *Pig Iron* made at the *Catoctin* (Maryland), and *Taylor* (Virginia), *Furnaces; Cold Blast* Charcoal Pig Iron from the *Cloverdale* and *Catawba*, Va., Furnaces, suitable for *Wheels* or *Machinery* requiring *extra* strength; also *Boiler* and *Flue Iron* from the mills of Edge & Hilles in Delaware, and *best quality Boiler Blooms* made from *Cold Blast Pig Iron* at the *Shenandoah Works*, Va. The productions of the above establishments can always be had at the lowest market prices for approved paper.

American Pig Iron of other brands, and *Rolled* and *Hammered Bar Iron* furnished at lowest prices. Agents for *Watson's Perth Amboy Fire Bricks*, and Rich & Cos. New York Salamander Iron Chests.

Baltimore, June 14, 1849. 6 mos

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1¼ to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,
12 Platt street, New York.

JOB CUTLER, *Patentee.*

☞ These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

Railroad Iron.

THE TRENTON IRON COMPANY ARE NOW turning out one thousand tons of rails per month, at their works at Trenton, N. J. They are prepared to enter into contract to furnish rails of any pattern, and of the very best quality, made exclusively from the famous Andover iron. The position of the works on the Delaware river, the Delaware and Raritan canal, and the Camden and Amboy railroad, enables them to ship rails at all seasons of the year. Apply to

COOPER & HEWITT, *Agents.*
October 30, 1848. 17 Burling Slip, New York.

Pig and Bloom Iron.

THE Subscribers are Agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,
Vine Street Wharf, Philadelphia.

Iron.

THE SUBSCRIBERS having resumed the agency of the New-Jersey Iron Company, are prepared to execute orders for the different kinds and sizes of Iron usually made at the works of the company, and offer for sale on advantageous terms.—

150 tons No. 1 Boonton Foundry Pig Iron.
100 " No. 2 do. do. do.
300 " Nos. 2 & 3 Forge do. do.
100 " No. 2 Glendon do. do.
140 " Nos. 2 & 3 Lehigh Crane do do.
100 " No. 1 Pompton Charcoal do.
100 " New-Jersey Blooms
50 " New-Jersey Faggoting Iron, for shafts
Best Bars, ½ to 4 inch by ¼ to 1 inch thick.
Do do Rounds and Squares, ⅝ to 3 inch.
Rounds and Squares, 3-16 to 1 inch.
Half Rounds, ½ to 1 in. Ovals & Half Ovals ½ to 1¼ in.
Bands, 1½ to 4 inch. Hoops, ⅝ to 2 inch.
Trunk Hoops, ¾ to 1½ in. Horse Shoe & Nut Iron.
Nail Plates. Railroad Spikes.

DUDLEY B. FULLER & Co., 139 Greenwich-st. and 85 Broad-st.

WILLIAM JESSOP & SONS'
CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving from their manufactory,
PARK WORKS, SHEFFIELD,
Double Refined Cast Steel—square, flat and octagon.
Best warranted Cast Steel—square, flat and octagon.
Best double and single Shear Steel—warranted.
Machinery Steel—round.
Best and 2d gy. Sheet Steel—for saws and other purposes.
German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.
Genuine "Sykes," L Blister Steel.
Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms by WM. JESSOP & SONS,
91 John street, New York.

Also by their Agents—
Curtus & Hand, 47 Commerce street, Philadelphia.
Alex'r Fullerton & Co., 119 Milk street, Boston.
Stickney & Beatty, South Charles street, Baltimore.
May 6, 1848.

SPRING STEEL FOR LOCOMOTIVES, TENDERS AND CARS.—The subscriber is engaged in manufacturing spring steel from 1¼ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address J. F. WINSLOW, *Agent*,
Albany Iron and Nail Works.

JOHNSON, CAMMELL & Co's Celebrated Cast Steel,

AND
ENGINEERING AND MACHINE FILES,

which for quality and adaptation to mechanical uses, have been proved superior to any in the United States. Every description of square, octagon, flat and round cast steel, sheet, shovel and railway spring steel, best double and single shear steel, German steel, flat and square, goat stamps, etc. Saw and file steel, and steel to order for any purposes, manufactured at their Cyclops Steel Works Sheffield.

JOHNSON, CAMMELL & CO.,
100 William St., New York.
November 23 1849.

American Cast Steel.

THE ADIRONDAC STEEL MANUFACTURING CO. is now producing, from American iron, at their works at Jersey City, N.J., Cast Steel of extraordinary quality, and is prepared to supply orders for the same at prices below that of the imported article of like quality. Consumers will find it to their interest to give this a trial. Orders for all sizes of hammered cast steel, directed as above, will meet with prompt attention.

May 28, 1849.

To Steam Engine Builders.

THE Undersigned offer for sale, *at less than half its cost*, the following *new machinery*, calculated for an engine of 62 inches cylinder and 10 feet stroke, viz:

2 Wrought Iron Cranks, 60 inches from centre to centre.
1 Do. do. Connecting Rod Strap.
2 Do. do. Crank Pins.
1 Eccentric Strap.
1 Diagonal Link with Brasses.
1 Cast Iron Lever Beam (forked).

The above machinery was made at the West Point Foundry for the U. S. Steamer Missouri, without regard to expense, is all finished complete for putting together, and has never been used. Drawings of the cranks can be seen on application to

HENRY THOMPSON & SON,
No. 57 South Gay St., Baltimore, Md.
Sept. 12, 1849.

Railroad Instruments.

THEODOLITES, TRANSIT COMPASSES, and Levels, with Fraunhoffers Munich Glasses, Surveyor's Compasses, Chains, Drawing Instruments, Barometers, etc., all of the best quality and workmanship, for sale at unusually low prices, by

E. & G. W. BLUNT,
No. 179 Water St., cor. Burling Slip.
New York, May 19, 1849.

Mattewan Machine Works.

THE Mattewan Company have added to their Machine Works an extensive LOCOMOTIVE ENGINE department, and are prepared to execute orders for *Locomotive Engines* of every size and pattern—also *Tenders, Wheels, Axles*, and other railroad machinery, to which they ask the attention of those who wish such articles, before they purchase elsewhere.

STATIONARY ENGINES, BOILERS, ETC., Of any required size or pattern, arranged for driving *Cotton, Woollen, or other Mills*, can be had on favorable terms, and at short notice.

COTTON AND WOOLLEN MACHINERY, Of every description, embodying all the modern improvements, second in quality to none in this or any other country, made to order.

MILL GEARING,
Of every description, may be had at short notice, as this company has probably the most extensive assortment of patterns in this line, in any section of the country, and are constantly adding to them.

TOOLS.
Turning Lathes, Slabbing, Planing, Cutting and *Drilling Machines*, of the most approved patterns, together with all other tools required in machine shops, may be had at the Mattewan Company's Shops, Fishkill Landing, or at 39 Pine street, New York.

WM. B. LEONARD, *Agent.*

Text Book of Mechanical Drawing,

FOR the use of SCHOOLS and SELF-INSTRUCTION, containing,

1st. A series of progressive practical problems in Geometry, with full explanations, couched in plain and simple terms; showing also the construction of the *parallel ruler, plane scales* and *protractor.*

2d. Examples for drawing *plans, sections* and *elevations* of Buildings and Machinery, the mode of drawing elevations from *circular* and *polygonal* plans, and the drawing of Roman and Grecian Mouldings.

3d. An introduction to *Isometrical drawing*, with 4 plates of examples.

4th. A treatise on *Linear Perspective*, with numerous examples and full explanations, rendering the study of the art easy and agreeable.

5th. Examples for the projection of shadows.

The whole illustrated with 50 STEEL PLATES.
Published by WM. MINIFIE & CO.,
114 Baltimore St., Baltimore Md.
Price $3, to be had of all the principal booksellers.

To Railroad Companies.

FOR SALE.—A Second-hand Locomotive Engine and Tender, of about 10 tons weight, in good order, and *warranted to perform well.* Any company wanting a cheap engine for a passenger or light burden train, will rarely meet with an opportunity so favorable as the present. The engine and tender are in perfect running order, and will be tested to the satisfaction of any one wishing to purchase. Price $1,500.

Address J. B. MOORHEAD,
Frazer P.O., Chester county, Pa.

P.S.—The Engine can be seen by calling on H. Osmond & Co., Car-builders, Broad st., Philadelphia.

September 6, 1849.

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This Cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
142 Front-street, New York.

☞ Orders for the above will be received and promptly attended to at this office. 32 1y.

NICOLL'S PATENT SAFETY SWITCH FOR Railroad Turnouts. This invention for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails; being laid down or removed without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two castings and two rails; the latter, even if much worn or used, not objectionable.

Working models of the Safety Switch may be seen at Messrs. Davenport, Bridges & Kirk's Cambridge Port, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained, on application to the Subscriber, Inventor and Patentee. G. A. NICOLLS,
Reading, Pa.

To Railroad Companies and Contractors.

FOR SALE.—Two Locomotive Engines and Tenders, at present in use on the Beaver Meadow Railroad, being too light for their coal trains, but well calculated for either gravel or light passenger trains.

They weigh, in running order, about 8 tons each—having one pair of driving wheels 4 feet diameter, 4 truck wheels 30 inches diameter, with cylinders 10 in. diameter, and 18 inches stroke of piston. Tenders on 4 wheels. Address JAMES ROWLAND,
Prest. Beaver Meadow Railroad & Coal Co.,
Philadelphia.
or, L. CHAMBERLAIN, Sec'y,
at Beaver Meadow, Pa.

May 19, 1849. 20tf

India-rubber for Railroad Cos.

RUBBER SPRINGS—*Bearing and Buffer—Fuller's Patent—Hose* from 1 to 12 inches diameter. Suction Hose. *Steam Packing*—from 1-16 to 2 in. thick. *Rubber and Gutta Percha Bands.* These articles are all warranted to give satisfaction, made under Tyer & Helm's patent, issued January, 1849.—No lead used in the composition. Will stand much higher heat than that called "Goodyear's," and is in all respects better than any in use. Proprietors of railroads do not be overcharged by pretenders.

HORACE H. DAY,
Warehouse 23 Courtlandt street.

New York, May 21, 1849.

Fire Brick.

THE Subscribers have constantly on hand Rafford's Stourbridge, Oak Farms Stourbridge, Lister, Wortley, Red and White Welsh Fire Bricks, common and fancy shapes. Also,

ROOFING SLATES,

from the best Welch quarries, and of all sizes. Also,

COAL,

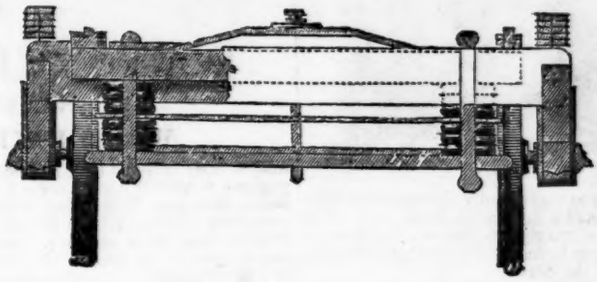
of all kinds—Liverpool Orrell and Cannel, Scotch, New Castle, Pictou, Sidney, Cumberland, Virginia, and all kinds of Anthracite coals. Also,

Pig Iron, Salt, etc., etc., for sale at the lowest market price. Apply to

SAMUEL THOMPSON & NEPHEW,
275 Pearl and 43 Gold Sts., New York.

November, 23, 1849.

FULLER'S PATENT
INDIA RUBBER CAR SPRINGS.



RAILROAD COMPANIES are cautioned, before purchasing Springs, to examine the actual patents and judge for themselves.

Persons, under the Title of the New England Car Company, seeking fraudulently to invade Fuller's rights have put forth so many statements for the purpose of misleading the public, that an enumeration of some facts is absolutely necessary, for the purpose of putting persons interested upon their guard.

Fuller's patent is for the application of Discs of India-rubber with Metal Plates, for forming Springs for Railway Cars and Carriages—either one disc and two plates, or ten discs and plates, or any other number, are equally covered by the patent. Fuller is not bound to the use of short discs—he may use long discs and plates.

Ray's patent is simply and wholly the forming of air tight rubber cylinders, with hoops or bands round the outside, and the combination of elasticity of India rubber, with the elasticity of atmospheric air confined in the cylinder, and in no part of his patent is he authorised to use the form of spring which he is now fraudulently supplying to Railroad Companies. Such springs are direct and positive infringements of the very letter of Fuller's patent.

Fuller's patent is dated October, 1845, Ray's patent, August, 1848.

The spring patented by Ray never has been put in operation, and never can be made useful for Railroad cars.

A mere experiment, even if made, it is well known does not prove an invention; and it is ridiculous for such parties to hope to mislead the Presidents and Superintendents of Railroad companies, by claiming the invention because Ray alledges he made an experiment—which Fuller had made before him—had actually brought into working order, and obtained a patent for—and this too before Mr. Ray states he made his experiment—and that experiment not claimed to have been applied to a car or carriage.

Besides, the invention could not have been developed until India rubber, properly Vulcanised, could be made of a sufficient thickness. In the United States the art of vulcanising rubber by steam heat, (by which means only can a body of rubber having any considerable thickness be vulcanised,) was not introduced until after the grant by the American government of the patent for springs to Fuller—whereas the process of vulcanising rubber by steam heat was invented in England about three years previously, and was used by Fuller there. This fact refutes entirely the claim of invention put forth by Mr. Ray, and proves the impossibility of his pretensions being true.

Fuller was the first and only inventor of the spring. A Mr. Dorr, whose connection with Mr. Goodyear is well known in this country, applied in England to Mr. Fuller, after he had published and patented his invention, and introduced another party for the purpose of obtaining the agency for the United States. They were furnished with a complete set of drawings and models, and with instructions to make arrangements for the supply of material of American manufacture—from that hour to the present not a single communication has been received from them. Some of these identical models have been traced into the hands of parties now seeking to invade Fuller's rights, and who have exhibited them as specimens of their own invention.

After this, the conveyance was made by Goodyear to certain parties here for the use for railroad springs of what he calls his Metallic rubber. Comment is unnecessary.

There are 5 or 6 different processes for the manufacture of vulcanised rubber, patented by as many different parties, some here, some in England, either of which would probably make good springs.

A large and powerful company has been organised under Fuller's patent, the particulars of which shall be given very shortly.

An action has been commenced against three railroad companies for infringement; and all other parties will assuredly be prosecuted if they continue farther to infringe upon Fuller's patent.

W. C. FULLER,

The only persons authorised to supply the Springs are G. M. KNEVITT, 38 Broadway, N. York,
General Agent for the U. S.: and
JAS. LEE & Co., 18 India Wharf, Boston.
JOHN THORNLEY, Chestnut st., Philad.

Arch St. Machine Shop.

BIRKENBINE, MARTIN & TROTTER,
Makers of

STEAM ENGINES,

and

HYDRAULIC MACHINERY,

NO. 16 ARCH STREET,
PHILADELPHIA,

Will construct Steam Engines, Pumps, for Draining Mines and Land; supplying Water to Towns, Factories, Farms, etc;

Also, Street Stops, Fire Plugs, Water Tanks, and Hydraulic Rams, with
(BIRKINBINE'S PATENT VALVES.)

B., M. & T. contract for Warming and Ventilating Buildings by Steam or Warm Water.

J. E. Mitchell,

NO. 14 OLD YORK ROAD, PHILADELPHIA.
Importer and manufacturer of

New Castle, Nova Scotia, Wickersly } Grindstones, of all sizes and grits.

French Burr, Cocaheo, Cologne } Millstones, made to order, with all the recent improvements.

American and Patent compressed, Garnkirk } Fire Bricks and Tiles of various sizes.

Burr Blocks, Bolting Cloths, Mill Irons, etc.

Steam Boiler Explosions.

THE Subscriber having been appointed sole Agent for Faber's Magnetic Water Gauge, is now ready to supply the trade, and also individuals with this celebrated instrument. Besides the greatest safety from explosion resulting from its use, it is a thorough check against careless stoking and feeding. In marine engines it will regulate the exact quantity required in the "blow off." Pamphlets containing full information, can be had free on application to the Agent,

JOSEPH P. PIRSSON,
Civil Engineer, 5 Wall st.

To the Proprietors of Rolling Mills and Iron Works.

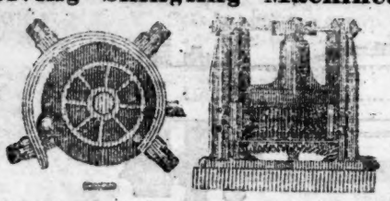
THE Undersigned—Proprietors of Townsend's Furnace and Machine Shop, Albany—are extensively engaged in the manufacture of Machinery and fixtures for Iron, and Copper Rolling Mills, and Iron Works. Having paid particular attention to the manufacture of *Rolls* (Rollers), both *chilled* and *dry-sand*, they feel confident that they can execute orders for such castings in a satisfactory manner. And to give assurance of this, they beg leave to refer to the following named persons, proprietors and managers of some of the most extensive rolling mills in the country, viz: Jno. F. Winslow, J. Tuckerman, H. Burden, W. Burtt, J. & J. Rogers, Saltus & Co., J. B. Bailey, L. G. B. Cannon, Hawkins & Atwater, etc., etc.

F. & T. TOWNSEND.

Albany, August 18, 1849,

MACHINERY.

Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phœnixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has given universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shingler's, or hammerman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll rounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery *for making Spikes*, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

RAILROAD WHEELS.

CHILLED RAILROAD WHEELS.—THE UNdersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

CHILLED RAILROAD WHEELS.—THE UNdersigned, the *Original Inventor* of the *Plate Wheel* with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money.

A. TIERS,
Point Pleasant Foundry.

He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country. A. T.

Kensington, Philadelphia Co.,
March 12, 1848.

ENGINE AND CAR WORKS.

DAVENPORT & BRIDGES,

HAVING ASSOCIATED WITH THEM

MR. LEWIS KIRK, OF READING, PA.,

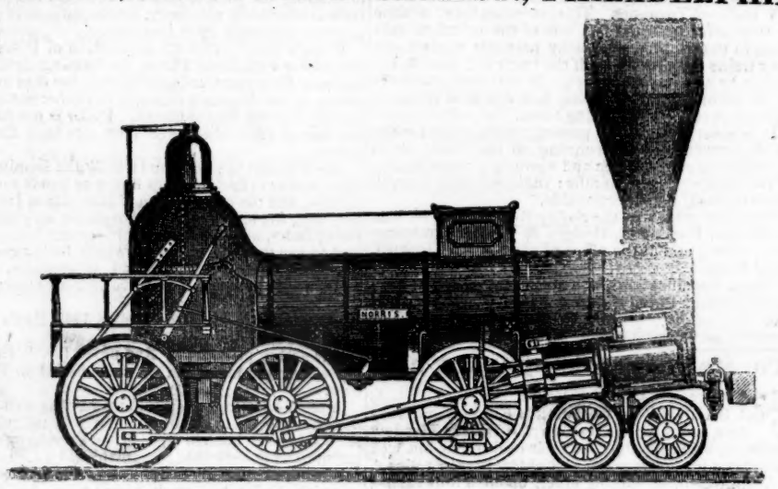
And recently enlarged their Establishment, (making it now the most extensive in the United States,) they are prepared to manufacture to order Locomotive Engines and Cars of every description. Stationary Engines, Steam Hammers, Boilers, and all kinds of Railroad Machinery. Also, Castings and Forge Irons of all kinds—including Chilled Wheels, Frogs, Chairs, Switches, Car Axles, and Locomotive Cranks, Connecting Rods, Steel Springs, Bolts, etc., etc. Orders from all parts of the country solicited for Engines and Cars, or any part or parts of the same. All orders will be furnished at short notice, and on as good terms as any manufactory in the country. Coaches pass our works every fifteen minutes during the day, from Brattle St., Boston.

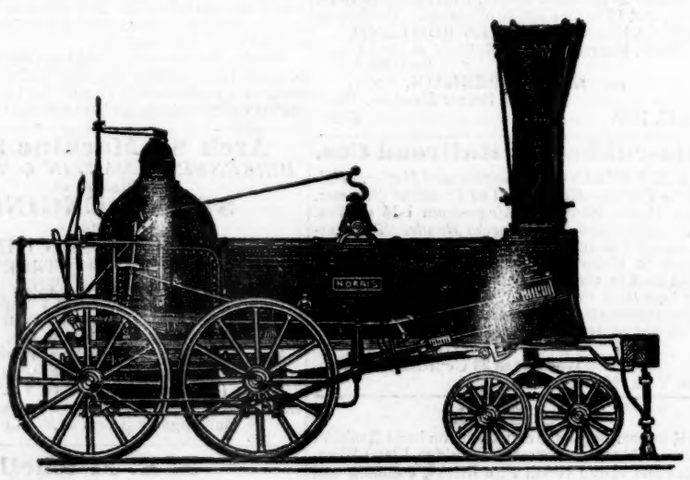
DAVENPORT, BRIDGES & KIRK.

Cambridgeport, Mass., February 16th, 1849.

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,





THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size.

Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tires are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS